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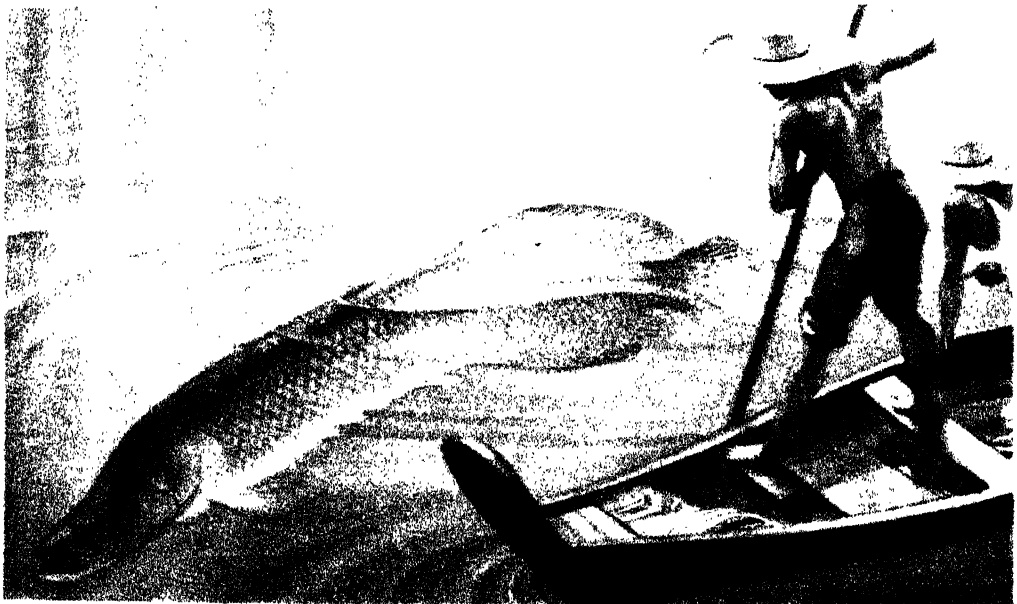


GAME FISH OF THE WORLD



TUCUNARÉ-ASSU (*Cathartes aura*)

South America



Frantiosio

PIRARUCU (*Arapaima gigas*)

South America

GAME FISH OF THE WORLD

Edited by

BRIAN VESEY-FITZGERALD, F.L.S.

and

FRANCESCA LAMONTE, Secretary, I.G.F.A.

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Illustrations by

A. FRASER-BRUNNER



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BRUSSELS

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ERRATA.—The above list of illustrations is correct, but in the plate captions the following errata should be noted:

- PLATE 27. For "*CORREGONUS*" read "*COREGONUS*".
- PLATE 32. For "BLACK CRAPP (*POMOXYUS* . . .)" read "BLACK CRAPPY (*POMOXYUS* . . .)".
- PLATE 39. For "*SYGÆNA*" read "*ZYGÆNA*".
- PLATE 43. For "*SQUALUS*" read "*SQUALIUS*".
- PLATE 52. For "*ALBUMUS ALBUMUS*" read "*ALBURNUS ALBURNUS*".
- PLATE 57. For "*AQUIPINNIS*" read "*ÆQUIPINNIS*".
- PLATE 64. For "*MACCULLOCHELIA*" read "*MACCULLOCHELLA*".

NOTES ON THE COLOURED PLATES

By the Artist A. FRASER-BRUNNER

THE fish have, in nearly every case, been depicted as living creatures swimming in their natural environment, seen from a diving bell, a glass-bottomed boat, or in an aquarium. In these conditions the illumination is, of course, from above, and the light is diffused by passing through water. The appearance of the fish may, therefore, not always present that familiar to anglers, who see it often with the side turned upward to the rays of light passing through air. Note that in the living fish there is not a bright highlight on the cornea of the eye, for this only appears when light rays passing through dry air fall upon the wet surface of the eye—in other words the eye of a fish out of water.

The power to fade or intensify the colour as an emotional response, or even to change it completely, raises considerable problems when painting fish, and the results given here have been achieved in many cases only after prolonged study in order to ascertain the most usual colour phase. But in a few cases where the situation demanded it, a particular emotional effect has been shown, as in the breeding king salmon. Attitudes have been chosen where necessary to show particular structural features distinctive of the species, but in most cases the fish has been shown behaving in its normal manner, indulging in its favourite pursuits, eating its usual food, or responding logically to the circumstances depicted.

FOREWORD

SUNRISE of early May sees thousands of our anglers—men, women and children—heading for the streams, lakes, bridges, causeways, piers and oceans of this country to engage in America's most popular sport—angling.

It is a sport of immense variety, and most anglers love every aspect of it, whether it is hunting swordfish and marlin on the high seas, or wading trout streams. I have seen some of the outstanding big game anglers of the world sit happily for hours on a southern dock pulling out of the ocean its brightly coloured inhabitants; looking at them with an interest that never fades, and then throwing them back.

The real excitement of the sport is not only landing your fish; it is the whole day from the time you assemble your gear to the final satisfaction of having used it skilfully.

America has thousands and thousands of anglers. Very few inland waters are posted, and our wide range of climate, long coastlines, and numerous lakes and streams provide fishing somewhere the year around. You can wade trout streams, sit in a boat on a lake, surf cast from the beaches, catch the fishing train to Montauk and dash for a good place on a party boat. You can fish from piers, docks, causeways and bridges, or you can charter a cabin cruiser and guide captains. There is always someone to help you find your way. Our anglers welcome guests from other parts of the world, remembering the endless hospitality they have received from anglers in distant places.

I cannot properly express my gratitude to the men who have contributed to our section of this book. All of them are outstanding anglers; most of them are well-known authors, their books covering everything from fishing boats to ice fishing and fishing yarns. One of them, Michael Lerner, has demonstrated the interest which so many anglers have in the scientific side of aquatic life by giving to the American Museum of Natural History the beautifully equipped Lerner Marine Laboratory, in the Bahama Islands.

If any proof of their enthusiasm for the sport of angling is necessary, it is that these men generously gave of their time to write these articles. We over here are most keenly interested in this sport in other sections of the world, and it is with that exchange of information in mind that we are proud to have added our contribution to this unique book.

FRANCESCA LAMONTE
Secretary, I.G.F.A.

*Associate Curator of Fishes,
American Museum of Natural History.*

INTRODUCTION

FISHING is the most popular sport in the world. Men and women of every colour in every climate fish, and most of them start in very early childhood and never lose the thrill that comes to them then, never fall out of love.

This book covers fishing in all parts of the world. But it does not cover all fishing. To do that adequately would require several volumes the size of this, and even then there would be omissions. We have, therefore, confined this book to what are known amongst anglers as "game fish" or "sporting fish". The distinction is, of course, arbitrary: there is as much fun and as much sport to be had fishing for roach as there is for salmon, as great a thrill to be had in the catching of a flounder as in the catching of a tunny or a marlin. It is all a matter of perspective, and all true anglers know that quite well. For each man his favourite fish. But some division had to be made, and we have followed the accepted one. Even so there are, inevitably, omissions. Omissions, no doubt, in actual fish; omissions in fishing methods. Some of these omissions are deliberate—there has not been the space to describe every species that might qualify for the title "game" nor every eccentricity in the catching of them—but I would be the last person to assert that there are not also omissions of the other sort. I would merely say that in a book of this size it would be miraculous indeed were there not.

This book is a combined Anglo-American effort. My debt of gratitude to my American colleague, Francesca LaMonte, is beyond mere acknowledgment. She welcomed the first approach I, a complete stranger, made to her by letter. From the first she threw herself into the work—and editors do work!—wholeheartedly. She collected a first-rate team of experts (and moreover experts who can write—the two things do not always go together) and she had their material across the Atlantic punctually to the time I had set. She made work easy and pleasant.

I hope that the reading will prove easy and pleasant for anglers the world over. And that it will encourage those that can to fish in foreign waters. It is all too true that it takes a lifetime to know your own home water—and then you do not—but there is no thrill in the world to compare with that of taking a strange fish from strange waters, no thrill in the world to compare with that of coming back to your own home water after a sojourn in foreign parts.

BRIAN VESEY-FITZGERALD.

Devonshire Club
London, May 1949

PART I

THE SALMON (*SALMO SALAR*)

By MAJOR K. DAWSON

Chapter One

THE NATURAL HISTORY OF SALMO SALAR

General

It is, surely, one of the greatest wonders of Nature that every salmon, whether it weighs 4 lbs. or 40 lbs., carries a full and accurate life history on its scales. From them the expert can tell, almost infallibly, when it was born, how long it remained in the river before migrating to the sea, the length of time it spent in salt water and whether it has spawned or not.

The early years of the present century were epoch-making from a salmon fishing point of view, for between 1903 and 1905 three events of major importance took place which were to profoundly influence, and indeed revolutionise, the sport. In 1903 Mr Arthur Wood tried the experiment which in due course was elaborated into the greased-line method of fly fishing; in 1904 Mr H. W. Johnson wrote a letter to *The Field* giving a short account of his investigations into scale reading, and in 1905 Mr Holden Illingworth patented the reel which bore his name, and which was to influence spinning perhaps to an even greater extent than did Mr Wood's discovery, fly fishing.

At the moment we are only concerned with Mr Johnson, and it should be noted that Mr P. D. Malloch, who had a lifetime's experience of salmon in the Tay and other rivers, was also a pioneer of scale reading. But his conclusion that sixteen rings were added to the scale for each year of life proved to be erroneous. Mr Johnson's theory, which was in due course fully confirmed by the recapture of marked fish, was that the age of the fish could be told by the different zones or bands on the scales which can be easily read under a quite low power microscope or magnifying glass.

A fish keeps its scales for life; they begin to grow at a very early age, and, except to replace loss by accident, are never renewed. Therefore, as the fish grows, the scales must grow too, and this is done by adding a series of rings or ridges to the perimeter very like those one can see when a tree is felled. Temperature exerts a very marked influence on the amount of food a fish will eat, and this is true in both fresh and salt

water. In winter when the water is cold it feeds but little, even though in the sea supplies of herrings, haddocks and other species may be plentiful, and therefore the rate of growth is slow, and the rings added to the scales are close together. In April the water begins to rise in temperature and the salmon starts to feed heartily, and how heartily they do feed is shown by the fact that seven large herrings have been found in the stomach of one netted in the sea. The smolt which goes down to the sea weighing only a few ounces as the result of two years' river life will at the end of twelve months be around 5 lbs., and for every additional year it spends in salt water its weight will be roughly doubled.

This hearty feeding, which goes on from April until October, results in the rings added to the scales being very much wider apart than those made during the winter, and we therefore get a series of summer and winter zones or bands, one of each representing a year of life. Then, between the time a salmon leaves the sea and the conclusion of its spawning, it may lose up to 40 per cent of its weight. This causes the edges of the scales to become frayed and disintegrated, and if the fish survives to regain the sea, and there, in due course, begins to feed again, new rings are added to the scale, but the broken edge still shows as a sort of scar, and this is known as the spawning mark.

Temperature and food supply play a very important part in the life of the salmon from birth to death. The colder the river the poorer as a rule is the food supply, and this has a considerable effect on the length of time the small fish spends in the river before migrating. In the waters of England and Southern Scotland the migration or smolt stage is reached in the third spring, that is, at the age of about twenty-seven months, in the vast majority (95 per cent) of cases. But as one gets further north the percentage of three-year smolts increases, four-year smolts are common in Norway, and there are instances of fish which have spent five years in the river. The other extreme is evident in the Hampshire Avon, a warm river with an abundant food supply, where 60 per cent of the young salmon become smolts after only one year. An interesting example of how feeding can influence maturity is afforded by the late Duke of Bedford's hatching operations at Endsleigh on the Tamar early in the present century. The ova came from the Thurso, a river in the north of Scotland, but the fry were kept in ponds and artificially fed, with the result that they became smolts in their second spring, i.e., at the age of about fifteen months, whereas the naturally bred fish in the Tamar do not reach this stage until a year longer.

The smolts which survive to reach the sea (and the loss is very great as it has been estimated that from every thousand only about four adult salmon result) may remain from one to four, and occasionally five, years before returning to spawn for the first time. If they come back after one winter in salt water they are known as grilse. They usually begin to appear in quantity in June although July is *the* grilse month. The early ones are small, some no more than 2-3 lbs., but in June they run 4-5 lbs. and increase in size during the summer and autumn. August and September grilse will weigh 7-8 lbs., while in some experimental fishing carried out in the Teign in South Devon a few winters ago a grilse of 14½ lbs. was caught; this is a British record. In passing it may be mentioned that the only sure way of telling if a fish is a grilse or a small salmon is by scale reading.

The next older class are the "small" spring and summer salmon with two years of sea life. The term "small" is misleading as it refers to age rather than to size. This class weighs from under 3 lbs. to 24 lbs. for springers, and 5 lbs. to 28 lbs. for summer salmon, but the usual run is 8-10 lbs. for the first and 10-12 lbs. for the second. The next class is the "large" spring and summer fish which have spent three years in the sea.

They vary from 12 lbs. to over 40 lbs. in extreme cases, the average being about 20 lbs. for both classes, the spring fish in this class being in most rivers far more numerous than the summer salmon. A very small percentage of salmon stay four years in the sea; often they are fish which migrated as one-year smolts, and usually they are males weighing around 40 lbs., the variation being from about 35 lbs. to over 60 lbs. They are known as "very large" salmon. The number of salmon which remain five years in salt water before coming back to spawn is so small that the known cases can almost be counted on the fingers of one hand. They are almost invariably over 50 lbs., and one which was hooked and lost and later found dead in the Wye in 1920 was estimated to have weighed between 70–80 lbs. when alive. It is only possible to distinguish between spring and summer fish by scale reading, the latter description being applied to those which have restarted feeding in salt water, and have added a few widely spaced rings to the winter band before entering the river. Generally speaking, the first of the summer fish appear in the estuaries about the middle of May.

Spawning

So much has been written about the spawning of salmon that I do not think it is necessary to go into it in detail here. November is the chief spawning month, although a few may begin as early as October, and quite a number leave it as late as December. Then, in some rivers, there is a second spawning season of fish which only leave the sea very late in the year, after the season for both rods and nets has closed. They arrive in December and January, sometimes as late as February, and spawn very soon after entering the river. Very little investigation has been carried out to determine what exactly are these fish. Are they summer salmon which have for some reason delayed entering fresh water until long after the usual time, or are they a distinct class of their own? If the latter is true then they are no better than vermin, for, if "like breeds like," as many experts believe is the case with salmon, they will always run too late to be of any use for either food or sport. By re-working redds made by earlier fish they may also destroy far more valuable ova, and their offspring compete with the other fry for the available food supplies and so reduce the useful stock of the river, for any water will only support a definite and limited head of resident fish.

When the salmon have spawned they drop back from the shallow streams in which the ova was deposited to some quiet pool, and from there about February they start the downstream journey. For a great part of the way their progress is made tail first, presumably because, being weak, they are afraid of losing control and being swept away downstream and drowned, and so they edge back yard by yard keeping head to stream until they reach the lower reaches where the current is slower and they can swim in a normal manner.

Kelts

One of the great mysteries of the salmon is what becomes of the kelts once they reach salt water, and why so few survive to return a second time. In the days before scale reading it was assumed that salmon, like trout and sea-trout, spawned every year, and much of our salmon legislation and by-laws are founded on this out-of-date and exploded belief. Today we know that, taking the rivers of Great Britain as a whole, no more than 5 per cent of salmon spawn more than once. In the Wye, where netting has been greatly reduced, it is just under 7 per cent, in the Spey 4 per cent, and in some West Coast of

Scotland rivers, where there is little or no netting, such as the Add in Argyllshire, 34 per cent, or one in three, of salmon examined had already spawned once, and instances of three or four spawnings were not unknown.

But is a survival rate of one kelt in twenty sufficient reason to forbid spinning in early spring, as is done on the Tweed and other rivers, or prohibiting anglers from even carrying a gaff until April or May, a very common Fishery by-law? Sheer imbecility is the only term I can think of polite enough to print. The majority of kelts are easy enough to distinguish unless the angler is very inexperienced indeed, and even if an odd one is gaffed by mistake, as long as the wound is in the thick part of the flesh and pierces no vital organ the fish will live. Every year salmon get back to the river after being gaffed and very few die, while seals, porpoises and other sea enemies inflict infinitely worse wounds than a small gaff hole without their proving mortal.

The great difference in the condition of kelts, and the avidity with which they seize anglers' lures, is doubtless responsible for the widespread, yet quite erroneous, belief that these spawned fish do begin to feed and regain condition in fresh water. Very many kelts have been examined scientifically and only in a minute percentage of cases has any trace of food been found in their stomachs. The variation is quite easy to explain. The typical kelt, shining bright but thin as a lath, is the fish which ran the previous spring, and has now been a whole twelve months, possibly more, in fresh water without a single square meal. No wonder it is thin; the miracle is that it has survived at all! The rather less poor-conditioned is the summer fish which came up between May and August and has fasted for several months less. The next better stage is the autumn salmon which run in September to November after a full summer's feeding in the sea. Some of these still retain in March a slight foxy tinge with red spots on the gill-covers. Best of all are the salmon which ran very late, maybe in December and January, spawned almost at once, and have lost very little condition. Some of these will be no more than a couple of pounds or so below the usual weight for length, and plenty of clean spring fish are as much some years. These are the ones which get taken home and eaten by not very experienced anglers, and, to be quite frank, I would rather make a meal off one of these than of the typical hen fish of late September and October. Another class of salmon found in most rivers in spring are curious individuals which, for some unknown reason, have not yet spawned. In appearance they look like typical autumn fish, and usually the ova or milt is so ripe that it drips from the vent as they are landed. They are called "rainers" for the males, and "baggots" for the hens, and I have caught them as late as 12th May. Males seem more common than females, and in early spring, February and March, the former are quite good to eat.

Although tens of thousands of kelts survive the operation of spawning and return safely to the sea every spring, 90 per cent are never seen again in fresh water. As Menzies says in *The Salmon; its Life Story*, "They disappear and are heard of no more." Of the minority some stay only a few months in the sea and return to spawn the following autumn; they are called "short absence" fish. Others remain for a year or more and are known as "long absence." Previous spawners are usually longer, thinner fish than maidens and more heavily spotted. They almost invariably still have some gill maggots left from their previous sojourn in fresh water. Many kelts, and also clean fish which have been up some time, are heavily infested with these loathsome looking parasites; others have few or none. The other external parasite found on salmon is the sea-louse, which clings to the body, usually most thickly near the tail. They are brown



PLATE I

ATLANTIC SALMON (*SALMO SALAR*)
Ascending Falls

in colour, rather like the back of a sole, the females being about three times as big as the males. The latter may live up to a fortnight in fresh water. Sometimes the females will have egg strings attached to the body; then the fish has not been in the river for more than twenty-four hours.

Feeding

The controversy which raged so fiercely for so long, "Do salmon feed in fresh-water?" seems to have at last died a natural death. That it should ever have caused so much argument was probably due to the rabid conservatism of the older generations of anglers. It was fanned by the erroneous diagnosis of a doctor who dissected a salmon and came to the somewhat remarkable conclusion that the stomach atrophied in fresh water and was therefore incapable of digesting food. Therefore, to account for salmon taking anglers' baits, our fathers racked their brains and produced some quite amazing theories. For example, Mr F. G. Shaw, who wrote a very large book called *The Complete Science of Fly Fishing and Spinning*, published in 1914, solemnly announced that salmon took flies and baits because they regarded them as possible or probable enemies of their future young! One is lost at the ingenuity of the idea and its complete imbecility! Can one really imagine a cock springer in, say, January, months and months before his milt has even begun to develop, being gravely concerned about the safety of the fry he will presently sire? And if anything moving represented a danger to the children-to-be what a time the fish would have in floods when flotsam of all descriptions is passing over their heads, especially in autumn when the leaves are coming down thick and fast!

And yet the answer to the feeding question was surely obvious enough. They do on occasion, but not regularly, because, in the main, they subsist on the vast accumulation of fat which the rich feeding in the sea has stored in their bodies. Two facts surely prove this without the slightest possibility of doubt. First, while it is easy to understand a salmon taking a fly or spinning bait from curiosity, is there any other possible explanation, save a desire to eat it, why it should pick up and mouth and eventually, if given time, swallow a bunch of worms or a prawn trickling along the river bed? Mr Arthur Wood said he had seen over a hundred salmon busily engaged in feeding on a large hatch of March Browns and he could not keep his imitation out of their mouths. What was this if not feeding? On the other hand, if salmon did eat in fresh water in the same way as they do in the sea, there would soon be nothing left alive in any river frequented by them. Adult salmon in one stage or another are in the rivers for twelve months in every year; the shoals of clean fish passing up, and the hordes of kelts going down, would exterminate their own and other species. Nature does not work like that!

Colour Changes

One of the many things we still do not know about the salmon is the reason for the colour change from spotless silver to a hideous livery of red and brown and black and yellow between the time the fish comes into the river and spawning time. Menzies suggests that it is protective coloration, saying: "In quite small peaty streams fish thus discoloured are extremely difficult to see." But fish of any colour are extremely difficult to see in peat-stained water. Moreover, the water is not by any means always coloured at spawning time, and many rivers do not rise in the peat. In clear water a red fish is much more visible than is the silver with greenish-brown back of the fresh-run salmon. In any case,

salmon so often spawn in such shallow water that no protective coloration would be in the least effective in camouflaging so large a fish. The theory is not therefore very convincing.

Neither do we know exactly what causes the colour change. Some people have the idea that it is due to the action of river water, a sort of "rusting" as it were. This is, of course, completely wrong because it also takes place in the sea, and fish are often caught late in the season by the nets which are already well coloured before they have entered fresh water. Mr Hutton says: "The change in colour in mature fish is probably due to the transference of fats from all parts of the body to the genital organs, with the consequence that the coating of the scales, as it were, dries up and the thin plates coalesce and lose their iridescent effect and brightness. In the kelt the return of brightness is caused by the fats being diverted back to the original channels."

Menzies does not shed much light on the problem for he only says: "The cause of the colour change is a little obscure, though it has been suggested that it is not unconnected with the deposition on the skin of some byproducts resulting from the development of the genital organs." Thus both these experts seem to agree that the colour change is due to the development of the sexual organs, and, as the two normally synchronise, it is perhaps the most natural assumption. But there are so many exceptions which seem to belie this theory that, personally, I find it not very satisfactory, although I have to admit being unable to suggest any other.

To begin with, one sometimes gets fish which are already quite a pinkish tint as early as March, and there are plenty in most rivers very red by May. Yet if these salmon are opened it will be found that the ova of the females are little, if at all larger than those of the fresh-run fish which have only just left the sea, and there will still be no trace of milt in the males. How then can the change be due to the development of the genital organs when these have not begun to develop?

Usually the colour change is a very gradual affair, but here again there seem to be exceptions. A very interesting case of this occurred in the winter of 1944. The Teign Fishery Board carried out experimental fishing during the close season to obtain information about the run of very late salmon which only appear long after the season both for nets and rods has ended. During this a salmon was hooked by one of the rods and played for some time. It was seen to be as bright as a fresh-run springer, but eventually broke away carrying part of the angler's tackle. A few days later this same fish was again hooked, the lost gear being still attached, but in the short interval it had completely changed colour and was a normal autumn hue. Unfortunately it was again lost and so a more detailed examination was impossible.

Some years ago the Tamar and Plym Fishery Board took out for scientific purposes a number of a similar type of late-running salmon which enter the Plym, usually in December and January. Most of these are typical autumn fish in appearance, but there was one hen of 18 lbs. which was as bright as any March springer. Yet her ova were as big as peas, and as fully developed as that of the hens which had changed colour.

In the spring of 1942 some quite extraordinary salmon came up the Tavy. I had one in February and one in March; both had sea-lice and both were cocks. In appearance they were bars of immaculate silver, indistinguishable at first sight from the springers in the river at the same time, but they had fully developed "beaks" and milt so ripe that it dripped from the vents as they were landed. We usually get a few "rawners"

in this river each spring, but in no other year have I seen these sexually mature yet silvery fish, another instance that development of the genital organs is not invariably accompanied by the change of colour. Would they, I wonder, have altered as quickly as the fish in the Teign?

In view of all these exceptions the theory that the colour change is due to sexual development must, I think, be counted non proven at any rate.

Chapter Two

THE SALMON RIVERS OF GREAT BRITAIN

Because the main axis of the high ground in Scotland runs from North-east to South-west the majority of the larger and more important salmon rivers of the country have an easterly direction. Tay and Spey are each about 100 miles in length, Dee and Tweed but little shorter, and several others are over 50 miles. The rivers which run to the West are for the most part short, rocky and rapid, typical mountain streams, until one reaches the South-west Lowlands where such considerable rivers as the Clyde, Nith and Annan have a more placid course through a flatter countryside.

No other country has so many salmon rivers for its size as Scotland, and nowhere else does salmon fishing, both by commercial interests with nets of various kinds, and by rods, play such an important part in the economy of the country. Right down the East Coast there are at short intervals rivers like the Helmsdale, Brora, Conon, Ness, Beaul, Findhorn, Spey, Deveron, Don, Dee, the Esks, the Tay and the Tweed, names famous all over the world; interspersed are a number of lesser streams nearly all of which hold salmon. West Coast rivers, if equally numerous, are not equally important. Most of them are short and many run out of lochs, but they offer much good fishing, and the Awe is famous for its hard fighting leviathans. In the South-west corner the Clyde was once a fair salmon river but much of its one-time greatness has disappeared owing to the pollution both by sewage and the industries of Glasgow. Nith, Border Esk and Annan still provide good sport, the latter in particular having some considerable repute as a likely place for a real big 'un during the Backend.

Generally speaking, it may be said that practically all the best of the Scottish salmon rivers are privately held, and the water is let for very high rentals. But here and there are exceptions, usually thanks to the generosity of local riparian owners. Such is the Strathspey Angling Association at Grantown-on-Spey which controls thirteen miles of this famous river, for which tickets are obtainable at very reasonable rates. On some of the other rivers there is hotel water open to guests. Such fishing varies very greatly in quality; it can be very good—and very bad.

The Tay is such a great river that most of the fishing is necessarily by boat, a method which can be, and often is, in the early months of the year, a dull, cold business not to everyone's taste. The same is, of course, true of the lower reaches of some of the other rivers like the Tweed. Most of the East Coast rivers are early, opening in January and February. In the Tweed the spring fish are mostly small, but in good years very large catches are made, twenty to thirty by individual rods in the day being by no means unknown. The autumn run, as in many other rivers, has diminished in importance in the last generation or two, but is of larger fish. Grilse, for which the Tweed used to be famous, have likewise greatly fallen off in numbers. In the Tay the heavy salmon mostly run during spring, but the record for the river, 64 lbs., was caught in autumn.

Of the Dee, Calderwood wrote: "There is no river in Scotland which offers so much

first-class angling as the Dee." One of the beats, Cairnton, if not the birthplace, was the testing ground of the now popular method of fishing with a greased-line and just-sunk fly evolved by the late Arthur Wood which revolutionised both the methods and tackle used for fly fishing. Mr Wood estimated that the average rod catch for the river was eleven thousand salmon, more in good years, and said he had seen well over a hundred fish feeding on a big hatch of March Browns at the same time. This gives some indication of the stock of salmon in the pools. Unfortunately returns of rod and net catches are not compulsory in Scotland as they are on most English rivers. This seems a very out-of-date attitude on the part of the Scottish Fishery Board, and makes any real estimate of the number of salmon caught annually completely impossible.

Besides its rivers Scotland has innumerable lochs, many of which provide salmon fishing. Amongst these may be mentioned Loch Ness, Loch Tay, Loch Maree and Loch Lomond, the latter in a good year offering some of the best and cheapest fishing in the country. Loch fishing, being less popular than river fishing, is cheaper and more easily obtained as a rule.

Compared with Scotland, England has for its area far fewer salmon rivers, and it is curious that, whereas the East Coast of Scotland is one huge salmon preserve, the same, south of the Border, is very badly provided with salmon water. To some extent this is due to the work of man because before the industrial era in the North-east this corner of England contained some fine salmon rivers such as the Tyne, where as late as the 1870's the catch was usually in the region of seventy to a hundred thousand fish. Now Tyne, thanks to pollution by industries and sewage, yields a few hundred only, and the Wear and Tees are in the same parlous state.

After leaving the North-east there is not one salmon river for hundreds of miles although Trent and Thames were once streams of high repute, and the former still yields a hundred or two netted salmon each year. Half way along the South Coast salmon fishing begins again in the Test and Hampshire Avon, the latter being famous for its heavy fish. Frome provides a few hundred rod-caught salmon yearly, the catch in 1927 being four hundred and twenty, whereas in 1937 it was only eighty-one. Devon has a good store of salmon rivers, none being quite first class. Exe can be very good indeed in spring; the summer run is best in Tamar, and the Dart has some of the most delightful water in England. On the North Devon Coast are Torridge and Taw which in a good year yield nearly a thousand fish to rods and five or six times that number in the nets.

Thousands of salmon run up Severn annually but comparatively few are actually caught therein, probably due to lack of good holding pools and lies. Then comes Wye, brightest star in the English salmon fishing firmament, an example of what enlightened management can achieve. At the end of last century Wye was in a parlous state from over-netting in fresh water. Then in 1902 an association of riparian owners was formed to buy off many of the nets, and this policy has been continued until it is now one of the very few rivers where the rod catch is greater than that of the nets, although, of course, many of the thousands of fish netted in the Severn are Wye salmon. In 1927, which was a real *annus mirabilis* almost everywhere, rods accounted for six thousand one hundred and forty-five salmon. In 1936 they had nearly six thousand, and Mr Robert Pashley caught six hundred and seventy-eight himself. Wye is celebrated for its heavy salmon. Most years provide a number over 40 lbs.; the record spring salmon for Great Britain, 59½ lbs., came from the Wye, and, like the record Tay fish, was caught by a woman. In 1920 a monster was hooked and lost and later was found dead lower down the river

and in bad condition. From its length it would have weighed between 70-80 lbs. when alive. In 1937 rods caught seventeen over 40 lbs., and the nets two more. No other river in the land can approach these figures. Next door to Wye is Usk, a delightful stream where in a good year rods will kill fifteen hundred salmon or more.

Wales has a number of salmon rivers of varying repute. In the South are Towy and Teifi, the former yielding up to five hundred fish to rods in a good year. Dovey is most famous for its very large sea trout. Conway, the most attractive type of mountain stream, gave anglers six hundred and twenty-four salmon in 1935. The Dee is the most important salmon river in Wales. It provides from eight hundred to a thousand rod-caught salmon in a good year in spite of the very heavy toll taken by netting which sometimes exceeds five thousand. In the North-west are Lune and Eden, the latter the earliest English river to open on 19th January. Here the rod catch in 1927 was one thousand six hundred and eleven, while in the same year the Lune total was six hundred and fifty-two.

On the whole English and Welsh rivers have more hotel and association water than those in Scotland, and there are comparatively few in which there is no water at all open to the visitor.

Chapter Three

MODERN SALMON FISHING TACKLE

Greater changes have taken place in the last thirty years or so in the tackle used for salmon fishing than in the whole of its previous history. At the beginning of the present century the 17-18 ft. fly rod was still in general use for heavy work, the grilse rod was usually 14 ft. and was reserved for low water, and rods for sea trout were often 12-13 ft. Today the demand for rods over 16 ft. is practically nil; many people never handle anything longer than 12 ft., and hundreds of salmon are killed every year on rods of 9-11 ft. which our fathers would have deemed light for trout fishing.

Rods

At the same time fashions in rod material have gone all in favour of split-bamboo. Modern machines have both cheapened and improved the method of cutting the strips, necessarily a very delicate and accurate job, when one considers that the top of a light trout rod with its six sections may be less than one-tenth of an inch in diameter. How often these days does one see a new salmon rod made from greenheart, washaba or whole cane, all materials used extensively up to thirty-five years ago? Personally, I am not at all sure that this is a wise development. For a really high-grade rod there is nothing to equal split bamboo; its tops never let one down by snapping off like a rotten carrot as will greenheart at times, and although there are people who say that the action of a good greenheart is sweeter I doubt if many of them could tell the difference if blindfolded.

But even today if I were restricted to a moderate priced rod for salmon fishing I would choose greenheart, perhaps with split-bamboo top, for the two materials work well together, in preference to a whole rod of split-bamboo. I have seen too many of the latter, by what I call second class makers, which have gone wrong when given even a short spell of really hard work under difficult conditions. Invariably the trouble seems to start just above the lower ferrule of the middle joint. I had one myself years ago, and during 1946 I saw three fly rods, all between 12-13 ft., by two different makers, both of whom have well-known names in the fishing tackle world. All three had been repaired, but once a rod goes here a cure is impossible. Casting a big fly into a strong wind, or picking a heavy line off the water, imposes a terrific strain on the rod and only if materials and workmanship are above reproach will it do this indefinitely.

But there is more to it than this. However good the materials the rod cannot be satisfactory unless it is correctly designed so that each piece takes its full share of the work. It is a true mechanical problem and needs very careful working out. I am sure this is why Hardy rods have such a world-wide reputation for excellence, for the heads of the firm have always been both expert anglers and qualified engineers. Therefore, they know what a rod should be, and have the mechanical ability to put that knowledge into practice. Add to this their great experience and success in tournament casting and you have

every requisite for the building of first-class rods. Some people decry tournament casting and say that it and the tackle used are quite distinct from fishing. Admitted; but nothing finds out weaknesses in tackle as surely as tournament work, and as motor racing improves the touring car so does tournament casting result in better rods for you and me.

The choice of a rod is very much a matter for the individual. As Mr L. R. Hardy once said to me: "The only good rod is the one you like." Personally, I crave for lightness above everything as long as the design is right. I would far rather be under- than over-rodged, and would willingly, if necessary, sacrifice a few yards in casting distance than be burdened with something which turned pleasure into toil on a long day. It must be remembered that greased-line fishing in particular is a far more strenuous job than the older method of fly fishing when, after the cast was made, one just waited for the fly to swim round before repeating the performance. With the greased-line one is doing something all the time, that is one reason why it is so much more interesting; but continually "mending" the line can become very tiring. Some people use 13-14 ft. rods, and if they like them, well and good. Obviously the size of the river has some say in the matter, but very long casting with a greased-line is seldom advisable because, even if one can throw the line, it is almost impossible to control it properly. For this reason I think that 12 ft. is the useful limit, and on smaller rivers I prefer a rod of 11 ft. or an inch or two longer, such as the one Hardy's make for me called the "West Country Greased-Line Rod." This is 11 ft. 3 in., and weighs about 10½ ozs.

If fly rods have been reduced in length and weight the process has gone even further in rods for spinning. With a fly, distance is obtained by length of rod and weight of line, and a heavy line cannot be thrown by a too light rod. With spinning, however, the reverse is the case, the lighter the line the further the bait can be thrown, and while there are obvious limits to the reduction in line strength the "ship's cable" type of dressed spinning line used by our fathers is as extinct as the roc, and only in exceptional conditions is a line of over 20 lbs. breaking strain employed today. Consider the change which has come over spinning tackle since Chaytor wrote in *Letters to a Salmon Fisher's Sons*, published in 1910, that a useful spinning rod could be made by cutting 18 ins. off the top of a 16-ft. fly rod! What an impossible weapon we should consider that today when hundreds of salmon are killed every season on rods of 5-7 ft. in length and weighing 5-6 ozs. Even for big rivers and heavy baits in spring, modern spinning rods are seldom longer than 9-10 ft., or weigh more than 12-15 ozs.

It will probably be news to most people that the rod for use with the fixed-spool reel should have quite a different action from the one employed with a revolving-drum, whether it be the "Nottingham" type or the multiplier. In the first, most of the action should be in the top so that when a cast is made the line is started off with a jerk at the greatest possible speed, for this kind of reel cannot over-run. But for use with a revolving-drum the rod should start to bend first near the top and continue right down to the handle to give a slower and smoother impulse to the drum and avoid the snatch which is the chief cause of the reel over-running and causing those "birds' nests" which are such pain and grief to the angler. To the best of my belief this system of rod building has up to now only been developed into an exact science by Hardy's of Alnwick.

Reels

There are now in use in this country three types of spinning reels. First, the "Nottingham," which includes the plain wooden reel with an optional check, and



PLATE 2

KING SALMON (*ONCORHYNCHUS TSHAWYTSCHA*)

N. AMERICA

the improved "Nottingham" to which various devices have been added to simplify casting and make over-running less troublesome. Secondly, the fixed-spool, usually fitted with an adjustable slipping clutch, and thirdly, the multiplier. The latter, although a British invention, was developed in America, where it is, for all practical purposes, the only type in general use, and why we have been so long in appreciating its virtues over here is astonishing, for it is, without the least doubt, by far the best all-round type.

It scores over the "Nottingham" in that the drum, instead of being in one piece with the side plates, is a very thin light spindle which in the best models, like the Hardy "Elarex" or the American Pfluger "Supreme" and others, is hung on ball or jewelled bearings which reduce friction to a minimum. Starting inertia, therefore, is almost nil, and so very light baits can be cast, while the light drum never attains so great a momentum as that of the "Nottingham," and control is far easier.

The fixed-spool reel had a great vogue in the decade before the last war, for it is the easiest of all spinning reels to use. For the purpose for which it was originally designed, ultra fine spinning with lines of 2-4 lbs. breaking strain, it is supreme still, but for salmon fishing it is, to my mind, right out of its proper class. The larger reels of this kind, designed to carry longer lengths of heavier line, are not a success. The line comes off in coils over the edge of the spool, and, therefore, the larger the diameter of the drum and the thicker the line, the worse is the friction at the butt ring. This seriously cuts down casting distance, especially with silk lines, which soon become waterlogged and then tend to cling to the rod between reel and butt ring. To prevent this a "stand-off" butt ring was introduced, but many makers, obviously not understanding the nature of the trouble, put this ring too far up the rod where its effect was negligible. The proper place is very low down, not more than 9-12 ins. from the reel, in order to straighten out the coils and prevent the line wrapping itself round the rod. But the whole design is wrong for anything but very light work, and for lines of 8 lbs. and over which do not need the slipping clutch as a safeguard, the multiplier is an infinitely more efficient reel.

Line

The fishing line of the immediate future is without any doubt braided nylon, tapered and oil-dressed for fly fishing, where it has the advantage over silk of floating better and needing much less greasing. For spinning it is the answer to the bait fisher's prayer, the almost perfect line, the most important development in fishing tackle since the invention of split-bamboo rods. Nylon has many advantages over silk. It is far more resistant to water and never becomes sodden; it is more springy and has virtually no "coil cling" and therefore leaves the reel drum very freely. Its life is at least five times that of the best pre-war silk lines, and one can fish for days, even weeks, without having to break off the end of the line, or feel that one's margin of safety may be getting perilously low. In the best British and American lines the nylon floss is treated to make it even more water-resisting before it is braided. I have used a considerable number of British and American lines of from 5 lbs. to 20 lbs. breaking strain in the last seven years, and I have not the slightest hesitation in saying that any other type at present known is completely obsolete.

Of the monofil type of nylon now used extensively instead of silkworm gut for casts and traces it is not possible to be quite so enthusiastic. It has a number of real advantages, not the least being that it can be knotted dry. It has little or no glint and so is much less visible under water than silkworm gut, and when properly made should be—

but is not always—absolutely uniform in diameter. It is more difficult to knot securely than gut, but I do not regard this as a serious drawback because the Treble Blood for joining lengths, and the Double Turler for flies will hold well enough when properly made. Its greatest drawback, and a very serious one, is unreliability. It will hold a lion and yet sometimes break in a mouse; many of the breaks are quite inexplicable, and I have come to the conclusion that it is unsafe for salmon. I hope that in time the cause of this uncertainty will be discovered and remedied.

Why do people dye nylon? Any stain, by making it more opaque, must render the cast or trace more visible. Remember the fish are almost invariably looking up and see the tackle against the sky unless the pool is heavily overhung with trees, whereas the angler so often seems to judge the visibility of his gear against the possibly dark bed of the river. Which is the more opaque when held up to the light, a glass of beer or one of water, a piece of stained glass or a clear pane?

Many people use wire for spinning. Personally, I dislike it. No single wire is immune from kinking and will then break very easily; it is far more visible than either gut or nylon, and a light bait does not work nearly so well on the stiffer wire trace. For heavy spinning I use a yard of s/s gut with one swivel at the top, the other end being fastened to the swivel in the hook flight. More swivels are both unnecessary and objectionable in that they make the trace more visible. Avoid steel swivels, they rust at the neck however careful one is and then one day break. One treble and a bead stop is now the almost universal mounting for an artificial spinning bait. I use three sizes of triangles. No. 5 for devons of $2\frac{1}{4}$ ins. or larger; No. 7 for baits of $1\frac{1}{2}$ –2 ins., and No. 9 for anything smaller.

A point of primary importance which is very often ignored is that the whole outfit should be properly matched. This applies equally to both fly fishing and spinning. Casting a big fly on a very light rod is a sorry business, and even if a fish takes the fly the rod has not the power to drive home the big hook unless it has met a soft part of the mouth. The same is true of spinning, a very light rod and slipping clutch reel cannot hope to get a big thick treble hook home in the majority of cases, while if you use powerful tackle and small, fine wire triangles the hold may be torn out or the hook straightened by the excessive strain. Many people are not nearly particular enough about the sharpness of their hooks; a thin carborundum stone, as sold by motor dealers for trimming the platinum points in the ignition system, should find a place in every fishing bag—and not be left there unused! Unless the point will catch in one's thumb-nail when held at an angle of 45 degrees it needs attention.

Baits

Amongst artificial spinning baits the devon is supreme. "Miracle" baits come and, after a brief blaze of publicity, disappear. The same is true of flies, whereas the devon and the well-trieved standard patterns go on for ever. The devon has the immense advantages that it spins freely on the bead stop, and when a fish is hooked the shell runs up the trace and offers no lever to force out the hooks. Colour is very much a matter of individual fancy; what one believes in is good, anything else not so good. My personal choice is a brown back and cream belly. I find it equally effective in both clear and coloured water, in flood time and drought, and I very rarely use anything else. Blue and silver, and brown and gold are other well tried and effective combinations. Red I have done very little good with, although on some rivers it kills well. I like a bait with generous sized fins;

they make it buoyant and allow one to fish it slower. They spin well in slack water, again letting one fish more slowly, and so often a salmon follows the lure out of the stream into the slower water close to the bank. Then a bait with small fins may stop revolving, or spin so slowly that its lifelike appearance is lost, and the fish turns away without taking.

In the decade or so before the last war the plug—like the multiplier reel, an American development—invaded this country, first primarily as a pike bait and then for salmon and trout. One's initial reaction to the typical plug, especially some of the more elaborate and fanciful American designs, is that it is simply too bad to be true, a sort of angling gargoyle more likely to alarm than attract. But in action there is not the least doubt that it gives a more realistic picture of a little fish, and moreover a little fish not in the best of health, and so likely to appeal to predatory species which like an easy meal, than any spinning bait.

This being so, one wonders why it is not an even more killing lure than it is, and why it has not supplanted the spinner? A lot of salmon are now killed every year on plugs, and there is no question but that at times it will take a fish which has ignored everything else, even a prawn. But, having fished against it in the same river for a number of years, I am convinced that it is not such a good allround bait as the devon. On its day it is irresistible, but, by and large, and over a long period, the latter, equally well fished, will beat it hollow—why, I can't begin to explain or understand. It is an invaluable thing to have in the tackle box, for on the odd occasion it will have an odd, and very satisfying, effect on the odd salmon—maybe several of them.

Before the last war the American plugs, especially the Heddon make, were infinitely superior in appearance, and I think also in action, to the British. The former were works of art, the latter crude in comparison and poorly finished. This latter point may not seem very important, but I am sure it is because confidence is so great an asset that the fly or bait which pleases the user is the one most likely to please the fish. One thing I do not like about the American plugs is their huge hooks, often of wretched quality steel which break or bend too easily. With a very light rod I feel doubtful about being able to drive in these vast "anchors." Hardy's fit their "Wigglers" with reasonably sized triangles, but, compared with the devon, the plug is a bad hooker. I think most people would agree on that.

As the plug does not revolve I think makers might well give us more realistic models which really did imitate small fish. Elaborately painted spinning baits are made to catch the buyer primarily because, however like Nature they may look in the shop, once in motion all the elaborate detail is lost, one gets a flash from the predominant colour and that is all. But a plug working shows everything it has; most pike fishers have their pet natural baits, some swear by a dace, others a perch or a pikelet, and so on. Surely then they, and therefore the fish, would go in a big way for really natural plugs made to imitate actual species? One of the most experienced bass anglers I know says there is one bait no sea perch can resist, a salmon smolt; few baits are also better for a big trout; how welcome would be a plug lifelike enough to delude these species since it is illegal to employ the real thing. Salmon fishers, too, often swear by one natural bait, sandeel, gold or silver sprat; these are not always available when required, and then a realistic plug would be doubly welcome. Here is a good selling line for some enterprising manufacturer to give us better plugs in some of the new plastic materials.

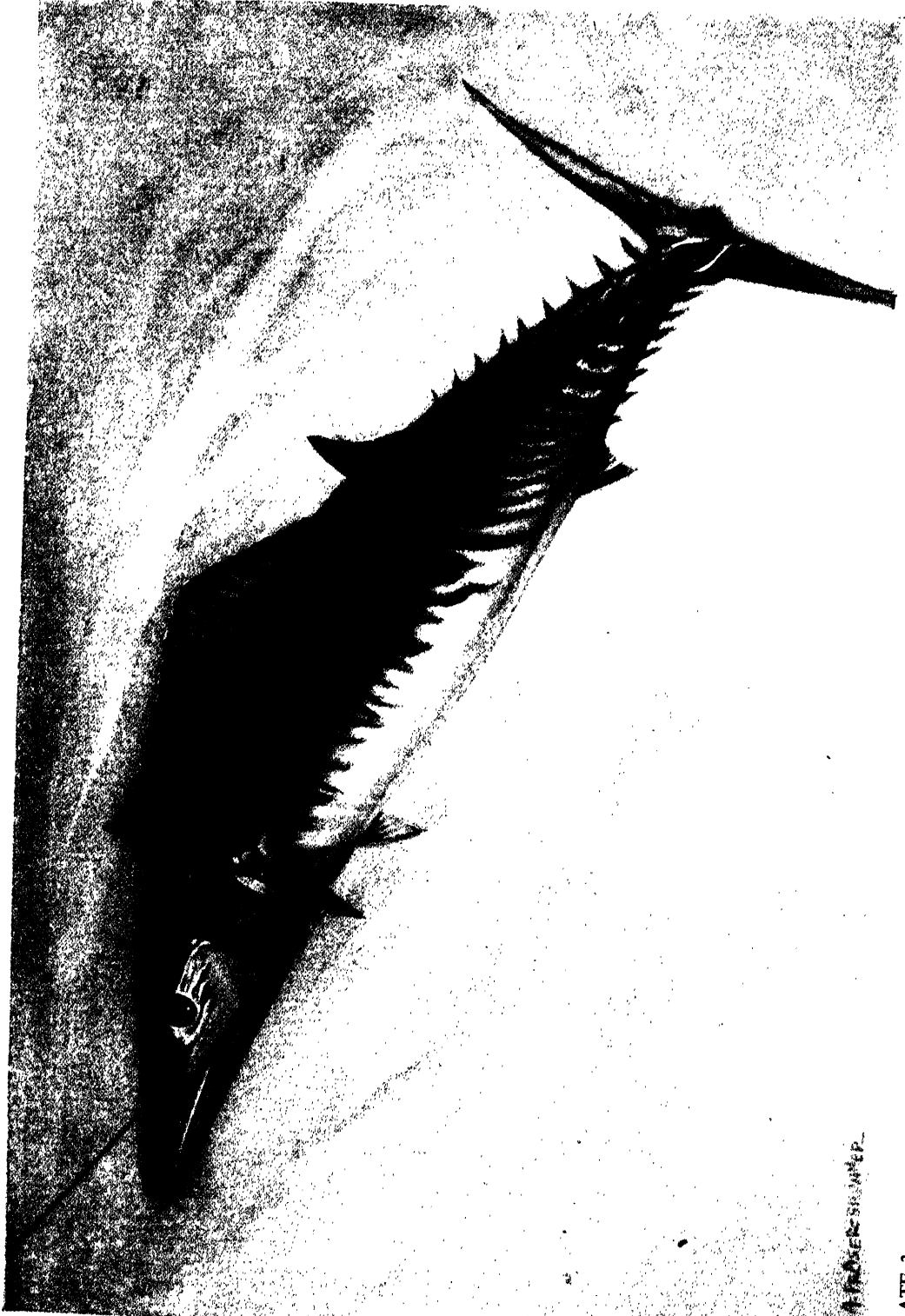
Of flies one could write a book, many have indeed been written, and yet there would be little new to say. As with baits, I hold that a fly is good if, and only if, you have

confidence in it. One man will swear by, say, a "Jock Scott" and catch seventy per cent of his salmon on this pattern; another has no use for it at all. Many years ago, when the first "fancy" flies appeared on the Tweed and other rivers, where purely local patterns like the "Turkeys," made from feathers to be found in any farm-yard, had hitherto been supreme, the gillies raised their hands and their voices to heaven, vowing that such monstrosities would never catch fish in "their" rivers. Yet today the old sombre patterns are little used.

We all have far too many flies—and what's the harm? It is good for trade, and pleases us without doing anyone a mite of harm, and there is no gainsaying that a well-filled fly box is a pleasant thing to gaze upon. But, although I have both, no one will ever make me believe that salmon can distinguish between, say, a Silver Doctor and a Wilkinson, a Silver Grey or a Dusty Miller. The late Arthur Wood used two flies chiefly, the Blue Charm and the Silver Blue, because, he said, they gave both him and the fish the choice of a dark fly and a light one. But one whole season for a bet he used nothing but a March Brown and killed just as many salmon. I believe that the man who had two flies, say the Silver and Black Doctors, in sufficient sizes, would not be in the least handicapped as long as he really and truly believed this. That is most important because it is no use fishing with something in which you have no confidence; given that confidence it is not the actual fly or bait which matters but the way it is used. Therein lies the difference between the real "killer" and the average man-in-the-street practitioner.

Some people don't like double hooks; I do, at least I like very much Hardy's "short point doubles." The fly on a double hook always swims on a level keel, and it cannot lie flat and slip through a fish's mouth, while the old belief that one hook may lever out the other is certainly not true of these of Hardy's. How many sizes are necessary? Certainly not every one. Below a No. 3 the difference is only $\frac{1}{8}$ in., quite difficult to distinguish in the box and completely impossible from the view a fish gets. From No. 3 to a No. 5/0 the variation is only $\frac{1}{8}$ in., and above that $\frac{1}{4}$ in. to a No. 10/0, a size I must admit never to have seen. The man who had alternate sizes from 11 to 1, and every two above that as big as he thought necessary, would be very well equipped for every possible occasion.

For low water fishing, especially with the greased-line, flies are better dressed much lighter than standard and on special fine wire hooks. In these the dressing, instead of coming to the bend of the hook or beyond, stops about two thirds of the way from the head thus creating the impression that the fly is smaller than it really is. The fine wire hook is lighter and so sinks more slowly, and, as it can be used in a larger size, takes a better hold.



A. F. SHERBURN, ILL.

PLATE 3

WAHOO (*ACANTHOCYBIUM SOLANDRI*)

AMERICA, etc.



PLATE 4

RUDDERFISH (*KYPHOSUS SECTATRIX*)
two phases :
MARGATE FISH (*HAEMULON ALBUM*)
YELLOW GROUPER (*MYCTEROPERCA VENENOSA*)

WEST INDIES
and FLORIDA

Chapter Four

FLY FISHING FOR SALMON

Before the invention of the greased-line method fly-fishing for salmon had changed little if at all in the previous hundred years, although, of course, tackle had been immeasurably improved. We still, in the main, cast at an angle of about 60 degrees downstream and allowed the fly to come round on a tight line with no more attention than some agitation of the rod, which varied from a gentle fluttering of the top to a violent " Ballyshannon Waggle."

Mr Arthur Wood's idea in greasing his line was in the beginning simply to keep the fly high in the water, for he had discovered, as the result of much fishing on the most prolific rivers in Great Britain and Ireland, that when the temperature of the air was higher than that of the water, as it usually is after early spring, salmon took a fly best when it was near the surface. When conditions were reversed he found the most effective plan was to sink the fly as deeply as possible, and his discovery showed that what had hitherto been the almost universal practice, fishing the fly in mid water, was in reality the least effective of all, although, of course, it killed salmon, thousands of salmon every year, on days when they will take anything anywhere.

This was the real revolution brought about by Mr Wood, the discovery of a new fundamental truth. Compared with this later developments, such as "mending" the cast so that the fly shall float down without dragging, and always having a loose line in order to give the fish plenty of time to get the hook back into the angle of the jaw, are comparatively unimportant.

The trouble with devotees of some new cult, whether it be religion, politics or fishing, is that they sometimes become so enthusiastic as to be in danger of developing into bigots who can see only one way of life and no good in any other. History teems with examples, and in the fishing world the early dry-fly enthusiasts during the reign of the arch-priest of the cult, F. M. Halford, took themselves so seriously as to condemn with bell, book and candle anyone who dared to fish in any other way on their pet preserves. It needed the art and humour of a Skewes to debunk their pomposity and bring about a more tolerant and broad-minded attitude.

So it has been with the greased-line. To the best of my belief Mr Wood wrote not a word himself about the method, but he gave interviews and allowed others to put down his opinions, and so it is difficult to know just how much of the theories were his and how much were elaborations of his disciples. By them it sometimes seems to be assumed that to catch salmon the fly *must* float down like a dead leaf apparently quite unconnected with line and rod. This is, of course, ridiculous, but it has led many people to believe that the greased-line method is only suitable for certain types of water, and is quite impossible on the rocky, rapid pools of many moorland and mountain streams.

Actually nothing could be further from the truth. The greased-line, fished according to the Gospel of St Wood, is impossible because, where the water is divided by rocks

into different channels, each flowing at a different pace, and often at different angles, the non-dragging fly is an almost unattainable ideal for most of the time. But the fundamental advantage of the method, the fly high in the water, is still achieved.

At about the same time that Mr Wood was discovering and elaborating his method another very well-known angler, Mr Ernest Crosfield, who was very successful on the Wye and other rivers, had evolved an extremely effective way of fishing in low water which was, except for the one fundamental truth, the very antithesis of the greased-line with its out-of-touch fly. Crosfield also had discovered that in summer conditions salmon took a fly best high in the water, although his view was that this prevented the fish seeing it too clearly. He liked to make the salmon dash at a fly from a distance without having the chance to "vet" it too clearly. Therefore he cast more or less straight across stream, and as soon as the fly alighted he began pulling in the line with the left hand, fast in quiet water, not so fast in rapid streams. Crosfield's fly, therefore, was *always* dragging—but he caught a great many salmon with it.

There are, indeed, plenty of examples to prove that fish actually prefer the dragging fly at times. More than once when fishing the narrow neck of a pool with very strong water, I have floated the fly over a known lie several times without any response, but by pulling the fly upstream so that it tripped along the surface, and even made a tiny wake, I have interested a salmon which had ignored the fly going downstream on a slack line. In later years Crosfield became a convert to the greased-line, not because he found it more effective in rising fish, but because he lost fewer of those he did hook.

Here is the real merit of one of the chief elaborations of the floating line, the cast made so that the line falls in snake-like coils instead of straight on the water, and the "mend" to prevent a belly forming which will presently cause a dragging fly; they make for well-hooked fish when combined with the delayed strike because they allow the salmon plenty of time to get the fly well back into the angle of the jaw, the most secure hold of all. Mr Wood used to win many a shilling off his guests by saying exactly where a fish was hooked. If he tightened quickly the fly would be in the front of the mouth, but if he allowed the fish to take and did nothing until the stream had carried cast and line below it was almost always fast in the corner.

Time is, indeed, one, if not the most important factor in successful salmon fishing. It may be divided into two categories, Time of the Angler and Time of the Fish. I will deal with the latter first. This delayed-action technique is, of course, a very modern development of the sport. All the older writers agreed on the vital importance of the tight line both when casting and playing a fish. They all thought that unless the rising salmon was struck without much delay, although not, of course, so quickly as a trout, it would eject the fly. Major Treherne, a very noted fisherman of his day, who wrote the *Salmon Fishing* section of the Badminton Library published in 1889, said: "It is highly probable that he (the salmon) often succeeds in ejecting the fly without being touched, having found out the trick which has been played on him."

Chaytor, in his invaluable *Letters to a Salmon Fisher's Sons*, published as late as 1910, was just as emphatic on the need to take prompt action to fix the fly in a fish's mouth. He says: "The man who fishes with a fly near the surface will constantly see the rise . . . he should wait perhaps two seconds. You see the boil and then you count one, two—strike. But in swift water the fish seem to take the fly more firmly, and you can safely strike more quickly." Contrast this with the advice given in an article on greased-line fishing a few years ago in *The Field*. The writer, Anthony Crossley, said

that you should *never* strike, that a salmon cannot be given too much time, and he even advocated giving line when you felt a fish, but admitted that it was, unfortunately, wholly against one's natural instincts to do so.

Contrary to the views held by earlier generations of anglers, a salmon does not quickly eject an object which it has taken and does not desire to swallow. More often than not after "mouthing" it for awhile it is passed out through the gills with the stream of water. Wood often landed salmon which had done this because his line was so slack that they felt no restraint or check, and I once had the same experience with a sea-trout which took the fly while my cast was soaking. Even a bulky object like a metal devon is not ejected immediately. In fishing some deep, narrow pools with a very heavy stream and using my favourite light devons I make a very short cast and then let out line slowly until I think the bait is near the bottom because here the salmon often lie under overhanging ledges and so cannot see a lure unless it is deeply sunk. All the time it is sinking the light bait is fluttering like an aquatic butterfly in the stream, and on a number of occasions when I began to reel-in I have found there was a fish on. These must have taken the bait while it was going down and had had ample time to discover and discard the fraud. Time, indeed, in the vast majority of cases, means the difference between a securely and a lightly hooked fish, and, let me emphasise again, is therefore perhaps the most important single factor in successful salmon fishing.

What I have called Time of the Angler is something quite different, but, I think, of equal importance. Far too many salmon fishers spend a great deal too much time in one place. They see a fish show, even one of those flying lunges which rarely indicate that this particular salmon means business, or they get to a known lie and stick there plastering the place over and over again. This, I am firmly convinced, is in the vast majority of cases, a terrible waste of time and terribly bad policy. The man who uses the words "always" or "never" about salmon—or women, for they are equally unpredictable—does not know the first thing about either *salmo salar* or *homo sapiens* (female variety). Therefore I do not say that bombarding a salmon never brings results; sometimes it undoubtedly does, but far more often it makes a fish not inclined to take still more dour, and much less likely to respond at another time of the day.

As to the odds about any particular salmon taking a fly on any particular occasion it is obviously impossible to assess. But they lengthen astronomically if there is no response of any kind after it has seen the fly three times, and few fish and fewer lies are worth more than half a dozen casts without some tangible encouragement.

I think this particular fault is far more prevalent in anglers who have fished for the most part on private beats. The man on club and association water knows he cannot "brood" too long in one place if there are other people about, and so he gets into the habit of pushing on. This is only one of the benefits which a training on public water confers. The man who fishes most pools properly in the day will, other things being equal, catch most fish, and in the majority of cases it is infinitely better to leave the salmon which has refused to respond after a few casts, and, possibly, one change of fly, and come back to it later in the day than to flog at it for half an hour with half a dozen patterns.

I may be prejudiced, as I learned my "trade" on association water, and most of my fishing has been under such conditions, but I believe that it is the finest school of all. Here there is no gillie to show the lies, choose the fly and tie it on, and slip in the gaff at the end. When fishing association water what you do get you certainly

have earned: Moreover, one's education is never complete for each season brings newcomers from whom one may learn, and this the man who reigns in solitary glory on some private beat, misses. He reaches a certain stage, and then, because there is no competition or comparison, progress is halted. How often I have seen a man making some cast, or doing something else which was not in my repertory, I should not like to say. But when this happens I have watched until I had got the hang of the thing, and then gone off somewhere alone and practised until I too could do it.

Ever since the new technique of fishing with the fly just below the surface was evolved it seems to have been taken for granted that the rise should always be seen. In fact it came to be accepted that unless you did see the fish or the boil you were doing something very, very wrong which did, or should, debar you from the society of the "best" people! There is, for example, that classic statement of Ernest Crosfield's, which has, I suppose, been quoted more often than any other single sentence in the whole literature of fishing. "If you see the fish come to your fly in February, March or a cold April you are fishing wrong, i.e., too fast and not deep enough; and if you don't see the rises in summer you are fishing too slow and too deep." This was, of course, in the days before Wood's discovery about the importance of temperature.

Wood seems to have been just as emphatic that the rises were always seen in greased-line fishing. On page 86 of *Greased-line Fishing for Salmon*, he is quoted by "Jock Scott" as saying: "As the fish take the fly on the surface, you can see exactly the manner of his taking." Again, on page 89, "As you are clearly seeing all this take place in front of your eyes." So the two experts, each in his particular way, agree that the rises are always seen. But is this invariably the case with their disciples?

I have to admit that when fishing the fast, boisterous water in the narrow necks and pools' heads of my moorland streams with a greased-line I actually see under half the rises, and often the first thing I know is the pull that tells me a fish is on. I noted this fact when revising my first book, *Salmon and Trout in Moorland Streams*, in the winter of 1945-46. I wondered if my experience was due to somewhat indifferent sight, because when fishing such places one has, as a rule, only a very short line out, and it seemed curious that I should not notice any disturbance of the water. Then, months later, I read in *Thrifty Salmon Fishing*, by N. K. Robertson, that there were others who shared my inability always to see the rise. Mrs Robertson wrote on page 93, "There is also the question of seeing the rise. At one time I selected my company carefully before I would admit that about half my fish took me without showing, even in comparatively quiet water. It was not until more courageous souls pooled their Slaney experience that I became brazen and said it out loud. In really still water there is always an upheaval, but if there were any ripple as like as not the fly would be sucked down without a break."

Because of this likelihood that the taking fish will not be seen in broken water it is of the utmost importance when trying such places to fish with as slack a line as possible. When only casting a short distance this is not easy, and probably the best procedure is, directly the fly has pitched, to strip a yard or two of line off the reel and then lift the rod point until it is almost vertical. This ensures that there is a big loop of loose line between point and water which will give the salmon time to get the fly well into its mouth before any tension is felt either by the fish or the fisher.

For the rest, the routine of greased-line fishing is so well known by this time that a detailed description is unnecessary. One normally casts straight across stream, and by

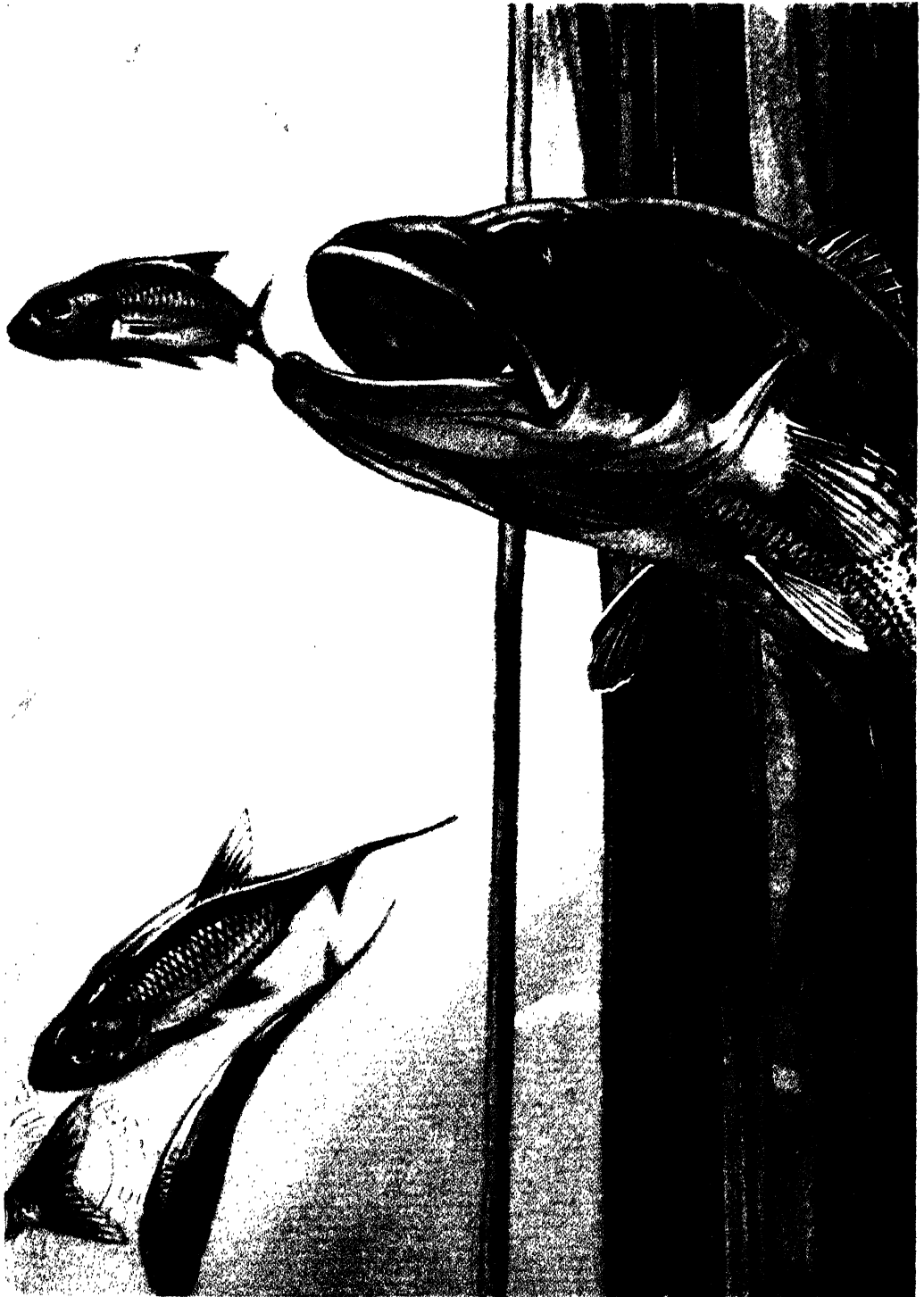


PLATE 5 SPOTTED BLACK BASS (*MICROPTERUS PUNCTULATUS*) N. AMERICA
and SHINED (*NOTEMIGONUS*)

“mending” or lifting over the line, which may be either up- or downstream as circumstances require, strive that the fly shall swim down without the line between it and the rod point ever becoming tight. How this can best be done varies with almost every cast, and the successful salmon fisherman is the one who has no rigid rules, in whose dictionary the words “never” and “always” find no place, who fishes with his mind as well as his hands, is always experimenting, and who does not take it for granted that the best way to fish today is the same as he fished yesterday.

Above all never become bigoted or stereotyped. The various tenets laid down for the practice of greased-line fishing are simply ideals at which to aim, for obviously in teaching some new art one must have standards. One must be able to say this should be done thusly to give the beginner something at which to aim. But there is no need to elevate these into “the laws of the Medes and Persians which altereth not.” For example, some people place quite ridiculous emphasis and importance on not jerking the fly when “mending” the line. Obviously it is an ideal to aim at, but there is not the least need for the beginner—or anyone else—to be discouraged and disheartened if the ideal is not always attainable—very few ideals are! I suppose in a very well stocked river it is possible that, perhaps once in a season, a salmon might choose to rise just as one was “mending” and have the fly taken away from it—lamentable no doubt, but hardly catastrophic! And in ninety-nine cases out of a hundred it matters not one hoot whether the fly is moved an inch or two or not.

Another way in which the views of the present-day salmon angler differ vastly from those of his father is in the matter of always keeping a tight line when playing a fish. Treherne was most emphatic on this point. In the Badminton library he wrote: “To keep a tight line from first to last is the golden rule. . . .” In another place he remarked: “There is also a great risk in handing over the rod to an attendant . . . in the act of so doing the line must get slack”.

This is, of course, still the normal procedure when playing a salmon, but, personally, I never feel very disturbed if I have to let the line go slack for some reason, such as the fish getting it round a rock. If the hook is in over the barb then there is little likelihood of it coming out even if the line is slack for an hour; and if it isn’t in properly then the chances are that the fish will be lost anyway. I have been broken by a salmon; I put up another bait, picked up the loose end of the line and knotted it on, and then killed my salmon. Few fish go far when the tension is relaxed, and this is sometimes a good way to stop one which is running into danger, or where it cannot be followed. The only sane thing to do if the line gets foul round a rock or snag is to instantly let it go quite loose and remain so until it is free again. Holding on is simply asking for the inevitable, a break, unless one’s tackle is of the ship’s cable variety.

I think the change in attitude over this question is due to the change of tackle. The very powerful rods used by our fathers could easily tear a hold which had gone into soft flesh like the tongue, and then, if the line went slack, the hook might drop out. But with the light rods used today there is very little chance of this happening.

One of the most debatable points in salmon fishing is the best procedure to adopt when a fish rises at your fly without taking, or even touching, it. I think the answer must depend a good deal on the temperament of the individual angler. Some advocate smoking a pipe before casting again; I don’t smoke a pipe, and, anyway, I’m much too impatient to wait so long. Personally, I just allow the salmon time to get back to

its lie and settle, say ten to fifteen seconds—which seems an age, and then try it again with the same fly. If there is no response after two or three casts I change to another pattern, or the same two sizes smaller. There are occasions, however, when a fly quite considerably bigger than the original will do the trick after the others have failed. As with women, you can never tell what the hell salmon will do, or when they will do it. Therefore to lay down any hard and fast rule is simply foolish.

Chapter Five

SPINNING FOR SALMON

Spinning for salmon has changed out of all recognition, both in the practice thereof and the estimation it holds in public favour, since Chaytor wrote in 1910 that a useful spinning rod could be made by cutting 18 inches off the top of a 16 ft. salmon fly rod! In those days spinning was something not done by the "best" people. Chaytor wrote: "Avoid minnow fishing for salmon as a canker which will eat into some of the best days of your fly fishing." It was a method barred on many rivers, a restriction which does still obtain today in a few waters owned or rented by diehards who have never fished in any other way, for in ninety-nine cases out of a hundred the "fly only" man of 1949 is the man who has not, and cannot, fish in any other way.

Obviously the person who owns water has the right to say what methods shall be used in fishing it, as long as they are legal, and if people don't like it they need not accept his invitations. But to apply a rigid "fly only" rule to any salmon river is, I think, to put it on the lowest plane, a terrible waste of good sport, and, in these days, a terrible waste of good food. Is there a salmon river in Great Britain which is always in order for fly fishing? If there is I do not know it, although the lower Test may come near, being a chalk stream not subject to the heavy floods which most salmon rivers experience.

For trout fishing it is quite different since this is, for all practical purposes, a resident species. Trout inhabit the same stretch of river, even the same pool, for year after year, from days of adolescence to extreme old age if they escape the wiles of mankind and other enemies for their undoing. But with salmon it is otherwise. Today your pools are full of fish, but inevitably, tomorrow, next week, next month, will come the rise which will take them another stage on their journey to the head waters and out of your beat. Moreover, every week they spend in fresh water their condition is deteriorating, slowly at first it is true; but why impose conditions which make it extremely improbable that you or your friends will catch anything on many days in each season when by a broader-minded attitude, and the permitting of an equally sporting and equally skilful way of fishing, much good diversion might have been enjoyed and much good food garnered?

The objection is so illogical. Why is a lure made from feathers more sporting than one of metal or wood? True, the old type spinning bait armed with three or four great triangles was a barbarous affair, but nowadays few people employ more than one treble hook, and much of the tackle used for spinning is far lighter than fly fishing gear.

To my mind the use of enormous flies is an anachronism. They need a very powerful rod, a heavy line and a stout cast, whereas the water can be fished infinitely more efficiently, and with infinitely less toil, by spinning. No fly, however big, can show in very high or dirty water as effectively as a spinning bait, which in revolving causes the flash to advertise its presence in a way no fly, however gaudy, can do. Moreover, in high water, especially in spring when the temperature is low, salmon often lie close under the bank to escape the full force of the stream. A fly reaches the bank at one point and is

then lifted and cast again; a bait comes into the side maybe 25 yds. below the angler, and is then reeled-in, travelling parallel with the bank and close to it for, say, 22 yds., and so is far more likely to be seen by fish than is a fly.

Spinning may be divided into two classes, heavy and light. Of the former there is really not a great deal which need be said because, except for the vast improvement in tackle which has taken place in the last decade or two, and which has been dealt with in another chapter, heavy spinning has changed but little in the last fifty or sixty years. The cast is still made at a considerable angle across and downstream, and the bait is allowed to come round on a tight line until it reaches the near bank and is then reeled in.

Opinions still differ on the merits of a light or a heavy bait. Personally, I rarely if ever use the latter nowadays because the light bait can be fished so much more slowly, and also more across-stream, than the heavy. Its action is far more attractive, at any rate to human eyes. It flutters like an aquatic butterfly in every current and eddy, whereas the heavy bait comes along on a steady undeviating course which looks much less natural.

But the greatest disadvantage of the heavy bait is that it must be fished well downstream on a tight line or it will foul the bottom in any but very deep pools. If there is one thing I dislike more than another in salmon fishing it is hooking a salmon when my line is straight and taut between rod and fish. It means that the take is instantly felt, and the angler's immediate and instinctive response is apt to result in a salmon insecurely hooked near the front or edge of the jaw.

Casting the bait across-stream has two advantages. First, it shows for a considerable part of its travel broadside on to the salmon's view, and so probably looks more attractive than does a mere tail-end snapshot. But, infinitely more important, there is almost invariably a considerable belly in the line which allows a small, but extremely useful, time-lag in feeling the take, and so permits the fish to get the bait well back into its mouth.

When fishing wide, open pools, where very accurate casting is unnecessary, the main weight can be in the lead. This will minimise tackle losses, but always seems to me rather a clumsy business and, especially when casting into a strong wind, often results in the bait being blown back and the hook fouling the trace; also, if wire is being used, this may cause a kink.

When trying deep or very coloured water always fish the cast right out and reel in the last few yards only just fast enough to keep the bait spinning. In such conditions salmon so often follow the lure right into the bank and dash at it just as it is being lifted. There are few more maddening experiences than to see the back of a good fish come right out of water as it makes a belated snatch at the bait taken out a second too soon. Such fish, in my experience, never come again, and the same is true when one's nervous reaction jerks a fly or bait away from the salmon which is seen following, or just on the point of taking.

A most essential point in all salmon fishing is always to watch very carefully the water close to where one's lure is working. So often salmon come at a fly or bait and the first time turn away, only revealing their presence by a momentary flash or swirl as they go down. The unobservant angler continues quite oblivious of the fact that he has interested a fish which will very likely come again if given another chance. That is why the second man down a pool is so often more successful than the first.

What is the best procedure in such cases? Frankly, as I said in the chapter on Fly Fishing, I never quite know. There is no way of telling why the fish changed its mind

at the last moment—or even if it did—although, personally, I doubt, except possibly in very fast rough water, if salmon ever really miss a fly or bait they firmly intended to take. A species which lives by catching fast-moving prey like herrings in the sea could not afford to do business on these hit or miss lines. No fly, and very few spinning baits, are ever really travelling fast when judged by fish speed.

My usual practice is to go back a yard or two and fish down over the lie again with the same bait. If there is no response when I think my bait has covered the salmon two or three times more I may wait a few minutes and then have a few throws with something smaller or less bright in colour. If this fails I carry on with the original lure until I am some ten yards below the lie and then have two or three casts diagonally up and across stream so that the bait comes down, spinning fast, just in front of where I think the fish is lying. Sometimes this does bring another run.

One thing I never do is to stay and “plaster” the fish for ten or fifteen minutes without a pause. So many otherwise good fishermen seem unable to resist the temptation to do this, but it is far, far better as a rule to leave it and come back later on. The light, or some other unknown factor, may have been the cause of the last minute refusal and next time conditions may be better.

For most spinning I think the artificial bait is every bit as good as the natural, and infinitely less trouble. But many gillies hold very strong views to the contrary. On the Slaney, for example, most of the professionals look upon the devon with utmost contempt; the only spinning bait worthy of the name in their view is a “bog sprat,” which is a small trout, in coloured water, and the natural colley, or stone loach, in clear. On many rivers the dyed golden-sprat is *the* bait, and in time there arises a tradition that nothing else is of the least use—because nothing else is ever used! The natural has one admitted advantage; a fish will sometimes come again after giving it a good pull and not getting hooked. It is rare for this to happen with a hard bait like a devon, although I once had a grilse run at my minnow four times, touch it lightly each time, and then be hooked at the fifth. Obviously one of the exceptions which prove the rule. Disadvantages of the natural are that, however skilfully it is mounted, it rarely spins as well as the artificial, and the time one wastes in putting up fresh baits to replace those damaged in casting or by fish.

Fine spinning is for me the most pleasurable and skilful of all methods of salmon fishing. I am very fond of the greased-line, but fine spinning has the advantage that one can cover so much more water with the knowledge that every fish therein has seen and had a chance to take the bait. People talk glibly about casting 20 yds. with a 9-ft. rod, and 10 yds. further with a salmon rod. Not one in twenty can get anywhere near such *measured* distances in actual fishing with a fly, but with the correct outfit 30 yds. is easy with a spinning rod in expert hands.

Before going any further I want to make it quite clear that by fine spinning I do *not* mean thread-lining in the usual meaning of the term, that is with lines of 4–5 lbs. breaking strain and traces as fine as 1X. Salmon can, of course, be killed on such tackle, but, except in very easy rivers, the percentage of losses is far too high to be tolerated.

My ideal outfit is a 7-ft. rod weighing about 5½ ozs. with an action correctly designed for the type of reel to be used, as explained in the chapter on Modern Tackle. The reel may be either fixed-spool or multiplier; personally, I prefer the latter, for reasons I have already given. My line is 8–10 lbs. breaking strain braided nylon, Monofil nylon

is the next best thing. It casts beautifully, but is neither so reliable nor so strong as the braided.

Fine spinning is the perfect complement of the greased-line; between them they make up two-thirds of the whole art of salmon fishing when the water begins to drop in height and rise in temperature, the remaining third being represented by such natural baits as the prawn and worm. The great advantage of combining fine spinning with grease-lining is that each is superior in a particular type of water, and between them they enable one to fish every part of the beat, except the very deep, dead pools which are only useful in floods, to the best advantage.

Everyone knows the ideal pool for the greased-line, a gentle, even flow from bank to bank; it will kill fish in slow water rippled by a good breeze, and is least effective, and most difficult to fish, where the river is broken by rocks into different channels each running at a different pace, and in very fast and boisterous water generally. But the latter are the ideal places for fine spinning. One can kill fish in streamy, medium paced water, but in my experience it is simply a waste of time trying slow pools, at any rate with an artificial bait, although a small shrimp or natural minnow may bring some response. Thus we have the small bait for fast and medium water, and the greased-line for slow and medium, the two meeting in the middle of the range.

There is one absolute essential for real success in fine spinning—Accuracy with a capital A. One *must* be able to put the bait exactly where, and not about where, one wishes. Often it is a matter of inches, for when salmon are lying in narrow streams, in front, behind or alongside rocks, the bait is only fishing for a few feet, and must therefore pitch in exactly the right spot to show properly as it comes into the salmon's "window."

To those who only know spinning in the old way the new technique comes as a revelation. There was an old gillie on one of the beats of the Slaney, where some of the pools were ideal for the method, fast, rocky narrow streams, who could not conceal his astonishment. After watching me for half an hour he exclaimed "In all the forty years I've been here I've never seen anyone fish like you do. With that little rod you can put the minnow exactly where you want, and how you scrape the rocks without hitting them I don't know."

Mrs N. K. Robertson, in her book *Thrifty Salmon Fishing*, waxed rather scornful about "toothpick" rods and "improved" reels; I had the pleasure of meeting her in the spring of 1946 on her Huntingdon Castle water of the Slaney, which contains some lovely pools for every kind of fishing. Naturally, having read the book, I took both a "toothpick" rod and an "improved" reel when she asked me to have a day's fishing. I thought she rather looked down her nose as I put my tackle together, but at the end she was good enough to say that she had seen her water fished as it should be fished for the first time! And, in a subsequent letter, wrote: "Once again it was a treat to watch such mastership; not only the technique, but the knowledge of where to explore in a strange river." I quote these two witnesses to show that there is more in fine spinning than just slinging out a light bait haphazardly.

Most of our moorland and mountain streams, those in the South-west of England, Wales and the Scottish Highlands, are ideal water for fine spinning, and there are few rivers which do not hold some pools suitable for its employment. Well done it will kill salmon in the lowest water.

Another point which surprises most people, and is one of the main charms of the method, is that one is very rarely snagged on the bottom. As in greased-line fishing, the

idea is to keep the bait high in the water ; I like mine to be never more than a few inches deep. Of course one cannot always ensure this because eddies and down currents will allow it to drop vertically at times, but after a long experience of shallow, rocky rivers one develops a sort of sixth sense, actually it is unconscious observation of the surface of the water, which enables one generally to have a pretty good idea of the under-water layout.

There is no standard cast in fine spinning; one throws up, down or across at whatever angle seems right to cover the particular lie to the best advantage, and, having failed to move the fish one knows, or suspects, is there, from one direction one tries it from another, always being careful to avoid the cardinal sin of "plastering" it for too long. In trying a fast stream without visible boulders, or the boils which indicate under-water rocks, I normally cast straight across, or slightly up, and then point the rod downstream and lead the bait across broadside on in exactly the same way as one likes to fish the greased-line fly. A strong up- or downstream wind, which will belly the light line in the air, is grand because it gives the fish lots of time to get the bait well into its mouth before feeling any resistance and prevents one tightening too quickly.

Because one is for the most part fishing rough broken water very fine traces are quite unnecessary. I never go lighter than 9/5 gut—I hate wire for any sort of spinning, and for fine work it is anathema because a light bait needs a very flexible trace to allow it to play freely in the stream.

Owing to the need for extreme accuracy the main weight for casting *must* be in the bait, the only lead being a tiny pierced bullet, about BB size, for anti-kink purposes. Most of my fine spinning is done with devons, although a quill minnow, leaded to give it enough weight for casting, is excellent. Weights are light, $\frac{1}{8}$ — $\frac{1}{4}$ oz., seldom heavier, and sizes small, from 1 in. to 2 ins., never larger than the latter, with $1\frac{1}{4}$ ins. perhaps the best all-round size, although, of course, a lot depends on the speed and roughness of the water.

Shape is very important, and I like a bait with a rather fat porpoise-like body, or one that is flattened slightly, as if one had taken a round devon when it was hot and soft and pinched back and belly together a little. In all cases the fins should be big. Such baits are buoyant, sink slowly and spin freely. One can throw at an angle up-stream and let the lure come tumbling down in the rough water on a loose line without getting hung up in the bottom.

A friend of mine makes grand devons from syringa wood, a tip we got from Mrs Robertson's book, with celluloid fins. Alone they are too light for long casting, but by boring out the centre and fitting a thin brass or copper tube enough weight is obtained without any real sacrifice of buoyancy, and they fish just deep enough not to come to the surface and "cut" when reeled in upstream. Hardy's make a wooden devon, called the "L.R.H. Semi-buoyant", on similar lines which is excellent. With these baits one can search the most shallow water, and salmon often move out of the deeper parts of the pools into such lies at dusk on summer evenings.

Chapter Six

*NATURAL BAIT*S

Of natural baits used in spinning there is no need to write here, because they are fished in exactly the same way as the artificial. Whether they are worth the very considerable additional trouble they entail is a matter for the individual to decide. Personally, I do not. Some people like a bait which wobbles rather than spins truly; again I do not, and so experienced a fisherman as Mr L. R. Hardy agrees with me. But, as in so many other aspects of fishing, it is mostly a question of what one has confidence in.

The spinning prawn is fished like any other spinning bait, but the several other ways of using prawn, shrimp and worm come into quite a different category. There is no doubt that salmon at times go completely mad about the prawn, and at others it is utterly useless. This is, of course, to a certain extent true of any lure, but I think it applies most strongly to the prawn. It is rather like the little girl of the nursery rhyme: "When she was good she was very, very good; and when she was bad she was horrid." The prawn fascinates or repels; it is seldom ignored.

A few years ago Sir George Murphy, fishing his Clobemon beat on the Slaney, hooked a fish on prawn, and, after a short fight, was broken. He put up another tackle and within a few minutes hooked, and presently killed, the same fish with the first prawn still in its mouth. I doubt if one would do this with any other bait.

The most typical method of fishing prawn and shrimp is to cast out and let the bait come round slowly, tripping along close to the bottom. A long rod is an advantage because to fish this method to the best advantage one should be in close and intimate touch with the bait, and, therefore, a short line, a few yards longer than the rod, must be used. This makes it only really effective on small rivers, or where it is possible to cover the lies by wading.

The prawn or worm, for the two are fished in much the same way, is swung out with an underhand movement of the rod, the exact angle of casting being determined by the strength of the stream. In very strong water it will have to be thrown a bit upstream, but usually directly across is good practice. The strength of the water also determines the amount of lead necessary, but this should be kept as low as possible, and always be placed on the trace 18-24 ins. above the prawn. To lead the actual bait is to deprive it of one of its chief attractions—liveliness. It should play freely in every eddy and current; moreover, leading it would render it far more likely to get hung up in the bottom, which even the unleaded prawn will do surprisingly often.

While the prawn is coming round, and it can hardly do so too slowly, keep a loop of line in the left hand to avoid striking too quickly. Salmon take a prawn very quietly at times, and then it is quite impossible to be certain if the stoppage is due to fish or bottom. Fish also have an uncanny knack of nicking the back of a prawn without getting hooked; how they can do this so delicately and so safely verges on the miraculous.

When the prawn has come round near to the bank, lift the rod point very, very



PLATE 6

CHANNEL BASS (*SCIAENOPS OCELLATUS*)

AMERICA

slowly, and let the prawn play in the current, or, if the water is dead, sink and draw it for five, or even ten, seconds before taking it out. So often a fish will follow the tempting morsel from mid-river, and then, at the very last moment, maddened by the idea of losing the seductive-looking temptress, seize it savagely. There is never any doubt about the take in such cases. Another method of fishing the prawn is the "sink and draw", usually employed in pot holes, or very deep pools where any other way, and any other bait save the worm, is impossible. The prawn is simply let down slowly until it touches the bottom, and then alternately lifted and lowered by raising the rod. In a strong stream it may be "trotted" down a long narrow pool, either with or without a float to keep it off the bottom. By this means water otherwise ungetatable owing to trees or bushes may be searched as far away as 50-60 yds., the prawn being allowed to go down and then be reeled-in slowly, and the process repeated. The shrimp is used in exactly the same ways as the prawn; it is simply a smaller bait for lower water.

Fishing the worm also differs little, if at all, except in one essential point, from prawning. It is cast the same way with the weight some distance from the bait, and allowed to trickle along the bottom. But, whereas opinions differ about the time to strike with a prawn (some say as soon as the bait stops, others advocate giving a bit more time), all the "professors" agree that with the worm one can hardly be too slow. Salmon seem to mouth this bait for some time before really taking, rather, shall we say, like a connoisseur sampling some rare vintage, and striking too soon, or even putting the slightest tension on the line, is usually fatal to hooking.

I know people who aver that worm fishing is the most exciting way of catching salmon, and is, they say, far more thrilling than seeing the head and tail rise to a greased-line fly. First, the bait checks, and then, after what seems eternity, while one wonders if it is a fish or the river bed, the line is seen to move slowly for maybe five or six feet and stop again. Only then should the rod point be lifted to drive the hook home, and by this time it has probably got well down the throat. For real success with both prawn and worm intimate knowledge of the river bed is essential, and even then losses of tackle are likely to be distressingly frequent.

A thrilling method of fishing a small prawn or shrimp in low water is to stalk individual fish which can be seen, or whose lie is known exactly. Taking infinite care to keep well out of sight the bait is let down until it is just in front of the fish's nose. Few salmon will stand this unmoved for long; it will either take or move away, and this is the one occasion when it is permissible and worth while sticking to the one quarry for a considerable time.

Some years ago a case was recorded in *The Field* of a hookless prawn, which was being used to test the reactions of fish, becoming lodged in some weed just in front of one salmon. Its very presence seemed to annoy the fish, which moved forward and tried to dislodge the prawn with its nose. No other bait I know of would have had this effect.

SALMON OF THE UNITED STATES AND ALASKA

By DAN HOLLAND

Introduction

Six species of migratory salmon, as well as two which are non-migratory, are found in America. One of the migratory fish is found on the Atlantic coast, the other five being Pacific fish.

The Atlantic salmon of North America is identical with the salmon of Europe, both in size and habits. There is universal agreement that this is one of the world's grandest game fish.

The five species of Pacific salmon vary greatly in size and habits. They do have one outstanding trait in common, and that is their willingness to strike an artificial lure. When the United States was bartering for the purchase of Alaska from Russia, so I have been told, a Scottish Member of Parliament arose and said, "Those salmon will na rise to a fly; why not let the Yanks have it?" Had this sporting gentleman known the truth about these fish, I'm sure England would have outbid us and acquired the territory.

In a few cold lakes of the North-east there is a non-seagoing relative of the Atlantic salmon which is a favourite of American anglers. Likewise, one of the Pacific salmon has a fresh-water brother which lives in a few of the high snow-fed lakes of the northern Rocky Mountains. True to the traditions of the salmon tribe, these are both fine game fish.

Atlantic Salmon

The Atlantic salmon, to all purposes, has disappeared from the waters of the United States. The State of Maine has accomplished a highly creditable job in maintaining a run of this fine fish in two of her rivers, the Penobscot and the Dennys, with a promise of its return to other neighbouring rivers; but it is rather futile for the United States to boast of salmon in two rivers where once they swarmed from the sea in unlimited numbers in a hundred odd rivers. The passing of this most respected of game fish has been witnessed with deep regret, but the demands of industry have outweighed those of the sportsman. Dams and pollution have done their work well.

The only possible advice for a visitor whose principal interest is Atlantic salmon fishing is to take advantage of the marvellous sport afforded by Newfoundland and the Maritime Provinces of Canada.

Chinook Salmon

The chinook salmon ranks first among the Pacific salmon as a game fish. Chinook is an Indian word which refers to the first warm, snow-melting winds of spring. The chinook winds were cause for great rejoicing among the natives of the Pacific North-west. They foretold the end of winter and the arrival of the first fresh salmon from the sea.

This salmon has other names, such as spring, quinnat, king, and tyee. All are descriptive. King salmon is the Alaskan name for this mighty fish. I like it, for certainly this is the king of all the salmon tribe. A king salmon weighing 125 lbs. was taken in a commercial salmon trap at Petersburg, Alaska, a few years ago.

Like all salmon, this fish spawns in the fall or early winter. He spawns at such a great distance from the sea, sometimes 1,000 miles or more inland, that he is the first of the salmon to enter fresh water. In many large rivers, like the Columbia, there are two or three runs, the first one commencing about the time the first snow water reaches salt water. This may be as early as February. This salmon runs only in the larger rivers, but enters practically all such big rivers from the Columbia to the Yukon of Alaska. Like all Pacific salmon, this fish almost invariably dies after spawning.

The chinook is one of the two Pacific species which is caught on hook and line in salt water. He affords wonderful sport to fishermen in the Puget Sound area of Washington and among the islands of South-eastern Alaska. When in the ocean this salmon does not migrate far from shore. He is caught winter and summer among the islands and in the bays and estuaries of the North-west. He is more prevalent in the summer months, and the most concentrated fishing is enjoyed in the vicinity of river mouths where the fish gathers prior to the spawning run.

The usual method of taking salmon in salt water is by trolling a bright silver spoon, many local designs of which are successful. Light tackle is not essential, as proven by the commercial fishermen who make a living trolling for king and silver salmon. The lines used by these fishermen are strong enough to stop a horse, yet are combined with a heavy rubber shock absorber to prevent breakage when the powerful fish strikes. Necessary or not, for the sake of sport a trolling rod with a 6-ft. tip weighing 6 ozs. and a 9-thread linen line are recommended.

Fresh-water fishermen take these massive fish on much lighter tackle than does the average salt-water troller. The small ones, called jack salmon, are commonly taken on a fly rod, and once I managed to wear down a 30-pounder on the long rod, but that was a little too much of a good thing. The favourite tackle is a medium-weight bait-casting rod 5 ft. in length with a multiplying reel and 20 lb. test silk line. The lures are heavy casting spoons and small, imitation minnows, known as plugs.

The stream fisherman has a good opportunity at this fish since many months are spent *en route* upstream to the spawning grounds. The salmon can surmount almost any obstacle in his path, but often will rest in pools below a particularly severe stretch of water. Such pools are favourite fishing spots. As the actual spawning season arrives, the salmon is no longer fit for sport. But the fish which travels any distance to his spawning area is in trim condition and appearance for months after entering the river.

The range of this grand fish extends from northern California to the Yukon in Alaska. The flesh of the chinook is firm and delicious, as evidenced by the fact that it

brings the highest price per lb. on the commercial market. In appearance, this salmon is more stockily built than the Atlantic salmon. Other than his great size, he is distinguished from the rest of the Pacific tribe by the small, irregular black spots on the back and fins and particularly on the tail. The largest chinook taken on rod and reel weighed 83 lbs., and the average is about 25 lbs.

Silver Salmon

The silver salmon ranks second only to the massive chinook as a game fish, and then only because of smaller size. As a fly-rod fish, he is my favourite. He has the trim, racy appearance of the Atlantic salmon and the steelhead. With amazing speed he combines power and endurance and is a spectacular fighter, making repeated greyhound leaps clear of the surface.

The range of this salmon is greater than that of the chinook, the northern limit extending beyond the Yukon to Bering Straits and possibly into the Arctic Ocean. Like the chinook, he is caught in great numbers by salt-water trollers, but the season for this fish is shorter. The silver spawns later and nearer the sea than the chinook; therefore, runs later. A few are caught in coastal waters the year around, but the silver is available in concentrated numbers for only about three months prior to entering the spawning rivers. The best trolling season in Puget Sound, Washington, is August through November.

In the northern part of the range—Alaska—where this fish is generally known as coho, the salt-water fishing season commences about the middle of July and lasts throughout the summer. Alaskans fishing in Tea Harbour in the vicinity of Juneau catch this salmon by a very fascinating and sporting method known as strip fishing. A side of herring rigged to spin is stripped in on a fly rod against the tidal current. The result is exciting and sometimes disastrous. Cohos caught by this method average 10 or 12 lbs. and often are as large as 15 lbs. Occasionally a king salmon is hooked by this method, generally to the regret of the fisherman and the fly rod.

Both kings and cohos in this fisherman's paradise of South-eastern Alaska are caught by casting in salt water with a spoon, and excellent fly fishing for cohos is afforded in the estuaries and lower reaches of rivers as these fish start their spawning run.

The silver salmon increases in size toward the northern end of his range. In the Puget Sound area he runs about 6 or 8 lbs., while those in South-eastern Alaska average about 4 lbs. heavier; 15 lbs. is a good one, and the maximum is roughly 25 lbs. In one day's fishing in the Snake River near Nome, I was surprised to take a silver scaling almost 30 lbs. It appears that the sport fishing in much of Alaska is little explored as yet and offers unlimited possibilities.

The silver salmon is an ideal fly-rod size fish, and the fisherman who finds him in a stream along with sea-run trout, as is occasionally the case in Alaskan waters, is in for a real field day.

Blueback Salmon, Dog Salmon, and Humpback Salmon

The blueback salmon, dog salmon, and humpback salmon proceed direct from their deep-water sea homes into the mouths of their respective spawning streams and afford no sport whatsoever in salt water. After they enter fresh water, the only thing that can be said against them as game fish is that they often run in such concentrations that the fascination of the conquest is gone. Each cast will provide a strike.

Salmon do not feed extensively in fresh water. Since there is not sufficient food in a river to support the salmon hordes on their journey to the spawning ground, Nature has provided them with the energy to make the trip without further nourishment. The instinct to eat is still there, as is the desire to a certain extent, and they will strike a properly presented lure. Even after arriving at the spawning grounds, when all desire for food is gone and the digestive tract degenerated, the salmon will strike out of sheer pugnaciousness, although at this stage it is useless as a game fish.

The blueback salmon, called red salmon in Alaska, migrates extreme distances to the spawning grounds, sometimes travelling more than a thousand miles up river as does the chinook. In order to reach the spawning grounds by fall, it enters the large rivers almost as early in the spring as the chinook, often in March. It enters only those rivers which have snow-fed lakes at their headwaters and spawns on the gravelly bars at the inlets of these mountain lakes.

This is the most abundant and commercially important salmon in the world. It enters the rivers in such packs in the spring that rod fishing would be senseless. However, in the tributaries of the large rivers in which it runs, the pack is dissipated and the red salmon affords some fine sport. He will take a fly readily, but his mouth is hard and he is such a spectacular fighter that nine times out of ten he will throw the hook. The tenth time he will probably break the leader. Three of us found a few scattered reds in a clear stream below Upper Russian Lake on the Alaska Peninsula, and hooked 17 on our fly rods before we landed one. Each fish jumped six or eight times, if he did not shake the fly sooner.

He averages 6 to 8 lbs. in weight, with a maximum of about 12 lbs. The little redfish, a small fresh water relative of this fish, will be discussed under Non-migratory Salmon.

The dog salmon is slightly larger than the red salmon, reaching a maximum weight of about 20 lbs. He resembles the chinook somewhat while in salt water, but immediately after he enters fresh water he acquires reddish-black brindle marks on the sides and develops a slight hump on the back. The dog salmon spawns nearer salt water than the chinook, silver, or blueback salmon. In some small streams emptying directly into salt water the dog salmon may spawn only a mile or two inland. In larger rivers the fish will travel 150 miles to reach proper water for spawning. His range extends much farther north than the other salmon, having been recorded at Point Barrow, the most northerly tip of Arctic Alaska.

This salmon will take a fly readily—in fact, almost too readily. After the fisherman has conquered one of these stubborn, persistent fighters, he is more than willing to pass up others of the same ilk. He puts up a slow, determined, and unspectacular battle. On a trout fly rod it may take better than an hour to subdue him, and there's nothing the fisherman can do about it but break his leader out of desperation.

The humpback salmon is the last and least of the Pacific salmon. This little fellow weighs from 3 to 5 lbs. He enters fresh water as a beautifully proportioned, silvery fish, and a few short weeks later on the spawning beds has become a grotesque blotched-red creature with a misshapen back and curved beak. The change is almost unbelievable.

He enters small rivers and streams and travels but a short distance to the spawning beds. When hooked in good pre-spawning condition, he is as hot as a firecracker. The fisherman will be convinced that the lively fish is in two places at once, splashing into

the water in one spot and coming back out at the same time 10 ft. away. In some localities where his spawning grounds are almost within sight of salt water, however, his trimness is already giving way to grotesqueness when he arrives at the stream's mouth. Consequently, he affords little opportunity for sport.

Non-migratory Salmon

Non-migratory salmon derived from parent stock of both Atlantic and Pacific salmon are found in certain lakes of the United States. These two fish are the landlocked salmon of New England, and the little redfish of the North-west.

The landlocked salmon was originally found in the lakes of four watersheds in Maine. In these lakes it was landlocked out of preference rather than because of actual physical barriers. Today it has been introduced into many deep, cold lakes throughout northern New England and New York, where it is landlocked in the true sense of the word.

In appearance this fish is much like its sea-going cousin, the Atlantic salmon, except that it is smaller, darker in colour, more heavily spotted and larger finned. An 8-pounder is big, although this fish has been known to grow to a weight of more than 25 lbs.

Few fresh water fish are more active or afford better sport than does the landlocked salmon caught under proper conditions. From ice-out until the end of June this salmon will be found cruising and feeding near the surface, or at times following the smelt runs up feeder brooks. When feeding on smelt, a 6-oz. fly rod with a Maribou or Grey Ghost streamer fly on a 9-ft., 9/5 leader is an effective outfit. Late in May or early in June this fish and the large eastern brook trout in the same water will often be seen surface-feeding on the may-fly hatches. When this happens, no fisherman could ask for better sport.

The landlocked salmon spends the summer in the cool depths of the lakes. Many of these fine fish are taken at this time by deep trolling with spoon, minnow, or phantom. In comparison to surface fishing, this is poor sport. The heavy tackle used prevents the fish from putting on the wonderful aerial exhibition for which he is famous.

The best landlocked fishing is found in the many delightful lakes of the State of Maine. Sebago Lake, from which this fish was first described, Grand Lake, Moosehead Lake, the Rangeley Lakes and the Schoodic Lakes are all well known for their landlocked salmon fishing.

The little redfish is the fresh water form of the species of Pacific salmon known as the blueback or red salmon. Since the writer has never had the good fortune to fish for these dainty little fellows, the following information was obtained from Ted Trueblood, noted American angling authority.

Like the landlocked salmon of the North-east, this fish is non-migratory out of choice. Its home is in high, clear lakes in Idaho, Washington and Oregon, Redfish Lake of Idaho having been named from its presence. Like a migratory relative, it lives most of its life in deep water, then comes into shallow water on the way to the spawning stream, and dies after spawning.

Even down to appearance, this fish is similar to the blueback salmon. In all, it is a miniature edition of the sea-going salmon, and matures at $\frac{1}{2}$ lb. or less. In spite of tiny size and the depth of the water at which it lives, the little redfish attracts many sportsmen in the North-west. One undeniable reason for its popularity is the fact that this red-meated fellow makes such delicious eating.

This fish rarely takes an artificial lure. The favourite baits are a single salmon egg

or a small earthworm. Artificial lures are used only as attractors. A peculiar trolling rig which is effective in this type of fishing is a series of large, bright spinners followed by the bait. The redfish falls in behind the procession of spinners, probably out of curiosity, and thus sees and eats the bait.

Some patient fishermen still fish at great depths with a single salmon egg for bait. Others prefer ice fishing and in the winter hand-line for the little redfish through holes chopped in the ice. No better eating fish was ever tasted, I am told, than a freshly caught mess of redfish broiled at the lakeside over live coals.

SALMO SALAR IN SPAIN

By MAX R. BORRELL



THE Rio Miño is the last or southernmost salmon river in the Spanish Peninsula and, for that matter, in Europe. It is a peculiar coincidence that all the salmon water courses of Spain should be located between two frontier-rivers; the Miño, border-line between Northern Portugal and the Spanish Province of Galicia, and the Bidasoa, which divides Spain from France. Between those two "rios", the Spanish sportsman has sixteen first-class salmon rivers, six of which are partly preserved by the *Direccion General del Turismo* (Spanish Tourist Board) and ten free to all rods provided with the ordinary salmon fishing licence.

Licence fees are now based on annual home rentals. To the average salmon fishing sportsman a licence will cost about £5 entitling him to fish all the free trout and salmon rivers throughout Spain during the complete fishing season, that is, from the 15th of February to the 1st of August. By applying to the Tourist Board for a permit to fish its private waters, the Spanish and foreign sportsman can cast a fly or spin an artificial bait in its six private fishings. The extra cost varies according to the river, but generally speaking it amounts to about £5 per week.

Señor Don Luis A. Bolin, Director-General of the Spanish Tourist Board, realised long ago that shooting and fishing are a national asset and that as such they are worth organising properly and looking after. National Parks for Spanish ibex and chamois are already in existence, and with six salmon rivers recently taken over by his department one can look at the future of sport optimistically.

The season 1945 was a bad salmon year in Spain, especially at the beginning. Very few large springers were killed and right through to the end of the season the runs were indifferent. The writer's gillie in a free-for-all river, the Deva-Cares (now partly taken over by the Tourist Board) killed on fly, shrimp and worm over eighty fish which he sold for about £300, salmon in Spain being quite expensive, as netting is forbidden and will not be allowed until the rivers are fully recovered.

It would be most interesting to Britons to see our northern local "pescadores" handle their fierce weapons. The rod, made of ordinary bamboo, weighs at least 5 lbs., the wooden reel, home-made, is a formidable contrivance, and the line an ordinary waxed string. With these "things" our rural fishermen fish all day long, switching and spey-casting without the slightest effort and delivering a long and beautiful line. It occurred to me once to give a trial to this tackle. The "pole" seemed to weigh a ton; it went up on the back swing all right, but on the forward cast it could not be checked in time and the tip hit the water with a loud splash! The same thing happened on three



PLATE 7

PACIFIC YELLOWTAIL (*SERIOLA DORSALIS*)

AMERICA

consecutive casts, and when the rural's face was seen split by an ear-to-ear smile the performance was given up as a bad job. I am 5 ft. 11 ins. tall and built proportionately; I had been fishing for two consecutive months with a heavy greenheart rod and yet could not have handled the rural's "thing" for longer than fifteen minutes. The unsophisticated piscator was about 5 ft. 6 ins.; he worked his fierce tackle from dawn to dusk.

As stated the Rio Miño is the southernmost salmon river in Europe. It would therefore be interesting to compare salmon native to this water with those that live in, say, Scottish rivers. Scale readings have shown us that the majority of Miño smolts migrate to salt water very soon after twelve months of river life. I have also seen salmon in spawning dress as early as in June. The Miño is quite a large river and its salmon run up to a good size, 30 lb. fish not being unusual. The trouble here lies in its being an international boundary, and netting, poaching and all sorts of trap fishing are, legally, very complicated to deal with. What surprises me most is that fish should still exist in a river where salmon "murdering" has been going on since Roman Spain. The Miño is one of the best trout waters that it has been my luck to fish. *Salmo fario* weighing 12 lbs. are quite common. I had the good fortune of hooking and landing an 11 pounder a couple of years ago on spinning tackle. Catches totalling up to 30 lbs. for one rod are nothing to remark on.

Running one's finger upwards over a map of the N.W. coast of Spain the next salmon river of any importance that we come up to is the Rio Ulla. It is a lovely, sweet, largish river winding its course through green pastures and creeping vineyards. The Ulla has been sung by Spanish poets, and its music, wine and beauty, once heard, tasted or seen are hardly forgotten. The Ulla Valley has a temperate winter climate and early in the season sportsmen are often seen wading in shorts. Hard fighting salmon, lovely scenery and sweet new wine! Is there anything else needed to complete the fisherman's dream? The Ulla is a Tourist Board river.

Mountainous, wild and roaring is the Tambre! Strong tackle is needed here, for its salmon are loaded with dynamite and its banks make it impossible to follow a hooked fish. Several years ago a friend got into five large springers in twice as many minutes and lost them all. He was spinning; twice he was broken, three got away, one by straightening out a big treble. He was young, fishing in shorts, a good swimmer and fearless. When he hooked his sixth salmon he was determined to get it come what may; when his reel was getting stripped of line, he jumped in and, with head and rod above water, went roaring by me, but he landed 400 yds. below and killed his 25 lb. springer. His left thigh had a $3\frac{1}{2}$ in. gash, which later on had to be stitched. But such is youth!

Rio del Puerto, Rio Allones, Rio Mandeo, Rio Eume and Rio Sor, like the Miño, Ulla and Tambre, are all in the N.W. Province of Galicia. Five lovely, free-for-all streams, easy to fish and within reasonable distance from La Coruña, capital of the province. I killed my largest Spanish salmon, $26\frac{1}{2}$ lbs., in the Allones. Fishing in the Mandeo in early March a salmon was seen to jump a 4 ft. mill-weir and rest for a while on the edge, part of its caudal fin showing above the tongue of the slip. A few minutes later another fish came up and both vanished at once. Was the move accidental or was polite Mr Cock Salmon deliberately waiting for his lady-love? The Rio Eo divides Galicia from Asturias and is, probably, my favourite salmon river. The best beats were taken over this year by the Tourist Board, and Señor Bolin intends to make it a "fly only" river in the near future. It is just ideal for the purpose and worthy of that high

honour. The late Marqués de Marzales, Spain's most scientific and learned angler, had the same pools preserved several years ago, and some of his British friends are likely to remember this lovely stream.

Leaving aside several minor salmon rivers, we come now to the Rio Narcea (also partly taken over this year by Turismo). It is quite close to Oviedo, capital of Asturias, and flows through wild mountains and magnificently wooded hills. A good road follows the tortuous water course, and most of its pools can be fished at a stone's throw from the angler's car. It is quite exhilarating to play a fish to the sweet music of a singing thrush, a bird native to these parts. In order to cross the river the local peasants have their own cable—suspended cars which they make fast when not in use. Local fishermen, finding the cars locked, cross over by crawling on hands and feet between the cables, with rod, gaff and two 10 lb. salmon on their backs. Quite a circus performance!

Let us skip the next river, the Sella, with wonderful possibilities, and deal with the Province of Santander. The major salmon rivers in this region are the Rio Deva-Cares, Rio Nansa, Rio Pas and Rio Asón. The first named is really known as the Deva, the Cares being its tributary. It is most interesting to note that very few salmon, if any, go up the Deva once they get to the junction with the Cares. This river comes down from one of the highest mountain ranges in Spain (Picos de Europa, over 8,600 ft.), covered with snow during nine months of the year. It is, no doubt, the latest river in this country, and, now that the Tourist Board has it, steps are being taken to extend the open season to the end of September. Its waters are gin-clear, and salmon can be seen lying against the bottom from the higher road. The landscape all round is majestic; snow-capped peaks, green hills and terrific boulders.

The Cares is a tough river to fish and not recommended unless the fisherman is absolutely fit physically. My *ganchero* (gillie) in this river is an uncanny professional fisherman. He would be better described as a cross between man and otter. When human intelligence fails him the animal's cunning comes to the rescue. If Abel ever makes up his mind to get a particular salmon, that fish is as good as dead! Water seems to be his element; he wades through it, swims and dives in it with astonishing ease. He is and will remain an unsolved mystery.

The Rio Nansa has been in the hands of the Tourist Board for sixteen years. It is already well known by British sportsmen, and is, one might say, the cradle of Spanish anglers. Two years ago I fished the pool known as "La Capilla," using a blue charm on a greased line. The water was low, very clear and warm, and the sky cloudless. It was about noon, and I had been fishing for four hours without a single rise. We gave the pool a rest and tried our fixed spool casting outfit with a 4 lb. nylon line and a small spoon. On the first cast a fish got it, putting up the usual performance. But then *Salmo Salar*, Esq., decided to take a swim through a narrow channel made by the opposite cliff and submerged craggy rock. He went completely round it, coming downstream once more, still hooked, but with the line looped round the rock. Every time he made a move the rod and reel registered it gently.

I left him free to do as he pleased and he decided to behave quietly. I could see him just in front of me lying near the bottom. The *ganchero* got the fly rod, untied the cast and attached the line to a devon with a big treble. He made a cast above the hooked fish and the revolving devon immediately entangled the nylon line, which we broke purposely, the end going downstream. Now the gillie had the fish, and I had the gaff. Here was a salmon hooked by me on a bait casting outfit and played to a finish by my

ganchero on a fly rod! Quick-witted gillie, don't you think? Before leaving the Nansa let me say that last season a friend of mine hooked eleven fish in one morning and killed nine. In order to fish the Deva-Cares and the Rio Nansa the best place to stay would be Panes, a nice village with a good hotel.

Going eastwards we come next to the Rio Pas; but before getting there let the angler visit the world-famous prehistoric caves of Altamira, where he can admire polychrome paintings of bisons, wild boars and deer painted fifteen thousand years ago, when hunters were artists! The little and delightful old-world town of Santillana del Mar is most picturesque and also worthy of a visit. It was here that Le Sage's immortal Gil Blas was born. Rio Pas is Don Enrique Camino's favourite river; Don Enrique is Spain's most scientific living angler-observer; he is also an indefatigable worker and author of numerous articles on Spanish salmon. His modesty is proverbial and these lines are likely to bring a reprimand. The Pas is quite close to Santander. Steps have already been taken by Turismo to have it under the Board's control.

Rio Asón is now very well kept by the Spanish Forestry Department and its body of engineers. It is a free-for-all river, full of professional fishermen who cast a fly or spin a bait from morning to night, day after day, and month after month, until the end of the season. Wonderful artists some of them are too! There are almost as many "guardas" (water bailiffs) here as fishermen. The Asón was kept private years ago by Señor Enrique Ibarra. In the 1927 season he killed (one rod only) two hundred and seventeen salmon, average weight $15\frac{3}{4}$ lbs., in fifty-three fishing days. This "rio" is between Santander and Bilbao. I cannot describe the last river, the Bidasoa, as I have never fished it.

PART II

TROUT AND GRAYLING OF THE UNITED STATES AND ALASKA

By DAN HOLLAND

Introduction

America has been blessed with a rich and colourful variety of trout and salmon. Forty or more species have been scientifically classified. Today one or more of these is found in at least moderate abundance in forty-two of the forty-eight states, as well as throughout the vast territory of Alaska. Whatever the species and wherever found, these fish all exhibit the stellar game qualities which have made trout and salmon the favourites of fishermen the world around.

None of the many original species of trout has become extinct, although some have lost their identity through the interbreeding caused by carelessness in fish culture methods. Interbreeding of species does not occur in the wild state; in fact, the tendency is the opposite: fish which have become isolated by natural causes tend to take on characteristics of their own and maintain these traits.

Man has changed all this. Many of the classified species were originally identified only by careful scientific inspection, and now positive identification in some cases may be impossible even for the scientist, let alone the angler. For the sportsman it is sufficient and practical to describe the distribution, appearance, habits, and angling methods of the major families of American trout.

These fish will be treated in the following order: first, trout of the genus *Salmo*, including rainbow-steelhead trout, golden trout, cut-throat trout, and the introduced European brown trout; and, second, trout of the charr family, including eastern brook trout, lake trout, Dolly Varden trout, and the Arctic charr. This division of the two types of trout is an arbitrary one as far as the fisherman is concerned. The scientific differentiation lies chiefly in the structure of the roof of the mouth. In addition, trout of the genus *Salmo* are dark spotted on a light background and, among our native trout, are typically spring spawners. In contrast, the charrs are light spotted on a dark background and are fall spawners.

Finally, in this chapter, will be described the grayling. American salmon—Atlantic, Pacific, and non-migratory—has been treated in a previous chapter.

Rainbow-Steelhead

The rainbow trout is native only to the coastal watershed of Pacific America. This original range extends from California north to the Bristol Bay area in Alaska. Today,

through the efforts of appreciative sportsmen, the rainbow has been stocked and introduced not only throughout the United States but all over the world, wherever suitable trout waters are available. This alone is sufficient testimony to the greatness of this game fish.

Much in the manner of his big brother the salmon, a trout is inclined to be a wanderer. Food is the controlling factor in his choice of a home, and the search for a more abundant food supply has developed a sea-going strain of trout in many localities. Like the salmon, too, the trout must return to his native freshwater streams to spawn.

Rainbows which have developed this migratory habit have been given the descriptive name of steelhead. When returning from the sea—large, full-bodied, and bursting with energy—this great game fish reaches the peak of perfection. Among the fly-rod fish, he is rivalled only by the Atlantic salmon, to which fish he may be favourably compared in many respects.

The steelhead runs in practically all coastal rivers from mid-California north. The time of the run depends on the particular river and the distance to the spawning grounds. Many of the larger rivers have two distinct runs. Some spring runs start as early as May, with spawning taking place between January and May of the following year while winter-run fish are ripe for spawning; so there is no time of year at which these trout are not found somewhere in the streams of the North-west. The peak of the spring steelhead fishing is June, July and August; while the winter fishing is in late December, January and February. Many areas are closed to fishing during the spring spawning season.

In addition to spawning runs, the steelhead is occasionally inclined to move into estuaries and the lower reaches of rivers, presumably in search of food.

A few of the larger, most infallible streams for these sea-run trout in the United States are: the Eel and Klamath in California; the Rogue and Umpqua in Oregon; and the Chehalis and Skykomish in Washington. In South-eastern Alaska—in the scenic southern panhandle of the territory adjoining British Columbia, that is—the best fishing is found in a few small streams, the large rivers being too milky with glacial silt to afford good sport. The best of the Alaskan sea-run trout fishing is found farther north and west in the Kenai Peninsula and Bristol Bay areas in such rivers as the following: the Russian, Kenai, Wood, Newhalen, Naknek, and Egegik.

As to size, an 8- or 10-pounder is a good one. A steelhead above 15 lbs. is something to shout about. The run in which the steelhead average the largest, apparently, is the late December run in the Eel River of California. The rod and reel record weighed 29 lbs. and was taken in the Chehalis River of Washington.

When this fish first enters fresh water, he has much the appearance of the Atlantic salmon; that is, he has a round, full body, coated with a steely, blue-grey sheen. After a short time in fresh water, he takes on the appearance of the typical rainbow trout. The pepper-like spots on the back, sides, and vertical fins become pronounced; the cheeks turn to a bronzed blood-red; and a broad rose lateral band, from which the rainbow gets its name, extends from gill to tail. It is a beautiful fish.

Without a microscopic inspection of the scales, it is impossible for the layman to distinguish a sea-run fish at this stage from a non-migratory rainbow. Any large rainbows caught in waters with access to the sea are doubtless sea-run fish. I recall a 30 in., robust, and vividly coloured rainbow caught in a clear stream far up in the mountains of the Kenai Peninsula of Alaska. Since this stream emptied into a heavily

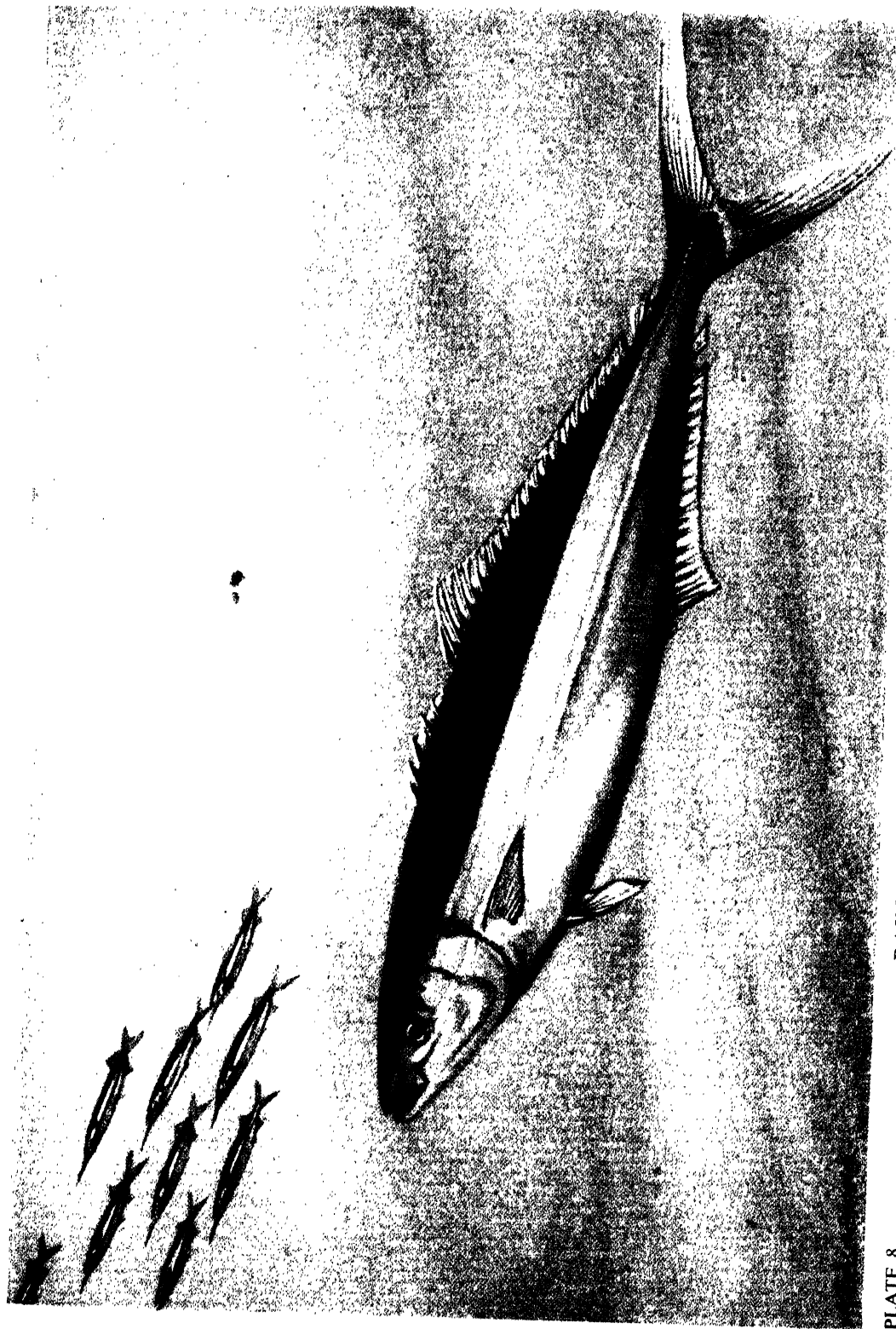


PLATE 8

RAINBOW RUNNER (*ELEGATIS BIPINNULATUS*)
pursuing HALFBEAK (*HYPORHAMPHUS UNIFASCIATUS*)

AMERICA and
SOUTH AFRICA

silted glacial river, I was convinced that this was an exceptionally large non-migratory rainbow. It seemed unlikely that a fish would migrate to the sea through those many miles of foul water. An inspection of the scales, however, proved it to be a seven-year-old fish which had spent five years in salt water.

The migratory inclination of the rainbow is evident in many landlocked waters where it has been introduced. Michigan, Minnesota, and Wisconsin have fine spring runs of rainbows out of the Great Lakes. The Sucker, Knife, Baptism, and Temperance Rivers of Minnesota are good examples of such rainbow rivers. The same condition exists in some of the Finger Lakes of western New York State. The size of the fish rivals that of sea-run specimens, but the runs are of comparatively short duration and the competition among the anglers is keen and concentrated.

In some waters where an introduction of rainbows has been attempted, the fish cannot be held, short of artificial means, for either the food supply is not sufficient or the water unsuitable, and he moves on. The tendency is too great for this trout to seek larger and richer waters in keeping with his size.

Of the non-migratory stream rainbows, a 2-pounder is a large fish and a 6-pounder exceptional. In such rainbow streams, however, of which there are many hundreds in the Western United States and a few in the North-east, the sportsman will find the most delightful of all light-tackle fly fishing. Most Rocky Mountain states allow trout fishing during the months of May to October. The writer's favourite month for fly fishing in this fertile trout area is September.

Up to about 3 lbs. this fish feeds extensively on insects, and in some streams with a heavy growth of sub-aqueous insects, like Silver Creek in Idaho and the North Fork of the Snake in Wyoming, rainbows up to 6 lbs. are occasionally seen feeding on the surface. Such fish are very selective feeders. Fine tackle and a careful approach are essential to success. A 3- or 4-oz. rod, 8 ft. long, an HDH tapered line, a 9 ft. 3X leader—as Americans call the cast—and a large assortment of flies from size 12 down to 16 would be an appropriate outfit.

For the more turbulent Rocky Mountain rivers, a stouter rod, heavier leaders, and small spinning lures are effective.

Even in fishing for the sea-run steelhead in the large coastal rivers, long, two-handed fly rods are not popular in America. A 9½ ft. rod is as large as the best local fishermen use. Distance is obtained by use of a front-taper line rather than by a long rod. An all-around steelhead outfit would be a 9 ft., 6 or 6½ oz. rod; a 100 yds. of 6-thread cuttyhunk backing behind the fly line, and 9 ft. tapered leaders in anything from 8/5 to 1X, depending upon water conditions.

The steelhead will take a dry fly on occasion, but most fly fishermen use the wet fly. Regular Atlantic salmon patterns in size 6 and smaller are effective, but probably more deadly are local steelhead patterns such as the Golden Demon, Silver Demon, Cardinal, Humboldt Rail Bird, Thor Optic, Red Mandarin, Carson, Polar Shrimp, Alaska Mary Ann, Bair's Demon, and the like, in sizes 4, 6, and 8.

English sea-trout and salmon spinning lures would be killing on steelhead, although little used in America. Local fishermen have their own brand of spinning lures which are fished extensively. Spinners and small, slender spoons are used on the fly rod. The American combination of the bait-casting rod and multiplying reel, which is universally popular with fishermen in the United States, takes more than its share of rainbows, both sea-run and non-migratory. Small, underwater plugs, originally designed for

black bass and pickerel fishing, and a great variety of spoons up to 3½ ins. in length are the lures used on this short casting rod.

Although less sporting than casting with either the fly rod or bait-casting rod, many of these trout are taken trolling. The steelhead is trolled for in the estuaries and lower reaches of large rivers, the lure used being a spoon, a strip of herring or a combination spinner and minnow. Trolling with spoon, spinner or bait is also a favourite method of fishing on the rainbow lakes of the interior.

Golden Trout

The golden trout of the High Sierras of California is an offshoot of the rainbow tribe. He deserves special consideration, however, due to the exceptional beauty of both the trout and the setting in which he is found.

The colour scheme of this trout is a brilliant yet delicately blended combination of yellow-gold, orange, and red. Parr marks, which are characteristic of young salmon and trout, are retained in mature specimens. The back, dorsal fin, and tail, are a yellow-green with heavy, infrequent black spots. The dorsal fin is greenish, tipped with red, while the lower fins are red, tipped with ivory. Anglers who have taken these trout from their native waters are of one opinion: that this is the most beautiful fish in the world.

The native home of the golden trout is Volcano Creek, which has its origin at the foot of towering Mount Whitney in the rugged High Sierras. From this very limited start the golden has been transplanted to many formerly barren lakes and small streams throughout the area. In these exceptionally cold and clear waters this fish retains his native brilliance and gameness; and whereas in Volcano Creek he attains a maximum growth of 11 or 12 ins., in the nearby Cottonwood Lakes he has been known to reach a weight of 6 lbs.

When transplanted down out of his native mountains, he seems to lose some of his fascinating colour; and when placed in water containing rainbow trout, the two interbreed and the golden strain gradually disappears. In such a stream in Idaho I have caught fish ranging from the practically pure golden to the typical rainbow coated with a golden sheen.

Although a comparatively small trout in most waters, the golden is a splendid game fish. He takes a fly readily and is a spectacular fighter. Fine tackle is in order, of course. Any light fly rod will do. As to terminal tackle, the leader should be tapered to 2X or 3X, and the flies should be in sizes 10 or 12. Preferred patterns are Black Gnat, Wickham's Fancy, Royal Coachman, Professor, and Silver Doctor. Some fishermen use salmon eggs on a No. 10 hook.

The golden trout country cannot be reached by automobile or railroad; it is a beautiful land of blue skies, jagged peaks and jewel-like lakes unmarred by civilisation save for well-marked trails. Access to this bit of fisherman's paradise is attained only after a long climb afoot or by horse. The fisherman must wait until July to make a trip, and the receding snows will allow better fishing a bit later in the summer.

An entirely separate species of golden trout was once found abundantly in four ponds in New Hampshire and Vermont, the principal one being Lake Sunapee in New Hampshire, but unfortunately these unique fish are no longer of sporting significance. Among other things, the untimely stocking of lake trout and land locked salmon in Lake Sunapee helped to reduce this rare and colourful relative of the Canadian red-sided trout to little more than a curiosity.

Cut-throat Trout

The cut-throat trout is aptly named and is readily identified by the pair of red slashes, one on each side of the throat directly under the lower jaw. This is the native trout of the Rocky Mountain area, being found from the mountains of Mexico north throughout the mountain states on both sides of the Continental Divide, as well as throughout the rainbow trout's native range in Pacific coastal waters from California north to Prince William Sound in Alaska.

The coastwise variety of the cut-throat is heavily peppered with small black spots throughout except on the belly. He has a greenish back with a purple-red cast along the middle sides. When caught in salt water or in the lower reaches of coastal rivers, he has a coat of silver typical of all sea-going trout. The cut-throat is not migratory in the sense of the salmon or steelhead, but rather wanders in and out of the mouths of rivers as food or fancy dictates. He, of course, spawns in fresh water.

The cut-throat of the interior of the United States—particularly the trout native to the Upper Snake River watershed west of the Divide, and to the Yellowstone, Colorado, and Rio Grande watersheds on the eastern slope of the Rockies—is often known locally as the black-spotted native. He has fewer and much heavier spots than the coastal cut-throat, the spots being concentrated toward the tail. The cheeks and lower sides are a reddish-brown.

The trout of different watersheds each had their individual characteristics originally. Restocking has eliminated many of these local differences; yet there are literally hundreds of small mountain lakes and creeks along with a few major rivers, like the Middle Fork of the Salmon in Idaho, and the Yellowstone in Wyoming, which have retained their original strain of trout unmolested by intruders from other areas.

Regardless of other differences in appearance among the trout of different parts of the range, all cut-throats carry their trademarks under the chin. This original range of the cut-throat has not been increased by man. If anything, his sphere has been reduced due to the fact that many former cut-throat streams in the Rockies are now occupied predominantly by the rainbow and other introduced species. This trout is not known anywhere in the Eastern United States.

The fact that a 41-lb. cut-throat was once caught in Pyramid Lake in Nevada is very misleading. Of hundreds of this species of trout I have seen taken in the Rockies and Alaska, I do not recall any over 4 lbs. in weight. In the little lakes and creeks at high altitudes these trout mature at a foot or less in length; and in everyday fishing with flies and small spinning lures in the bigger rivers of the valleys, a 2-lb. native is a good trout, and a 3-pounder a large one. The very large cut-throats are caught by deep trolling in big Western lakes, of which there are many in the inter-mountain region between the Rockies and the Sierra Nevadas.

A visitor to almost any section of the Rockies in the summer months will catch cut-throats. In the coastal areas, especially in the islands of South-eastern Alaska between Juneau and Ketchikan, this trout is very abundant in all streams and brackish water. Although not as spectacular as the rainbow, he is a fine game fish. Where such food is plentiful, he is predominantly an insect eater, but even under such conditions he is not a very selective feeder; therefore, too much care as to the choice of a proper lure is not essential. Regardless of the natural food available, he is susceptible to any small minnow imitation fished properly.

Some naturally good cut-throat waters, such as the Yellowstone, are readily

accessible by road. The visitor to Yellowstone Park will see an amazing sight where anglers of every possible description are lined up two deep on Fishing Bridge hauling up cut-throats from the river below. Such fishing would not interest most sportsmen, but a short walk along the river's bank will produce both solitude and fine angling.

Since the cut-throat does not present any great problems to an experienced trout fisherman, many of the easily reached spots are somewhat fished out. In less fertile waters than the Yellowstone, a hike back from the beaten path is necessary; and for the man who takes his fishing seriously, it is advisable to take a pack train into a remote country, like some of the "primitive" areas of Idaho or the Rawah Lakes or the Mesa Lakes of Colorado, where these trout are found in their native abundance.

Brown Trout

The brown trout, which was first introduced into the United States from Europe in 1883, has become a standard fixture with American trout fishermen. Today his distribution in the States is as wide as that of any of the native trout, save the rainbow. He is, perhaps, the predominant trout of the East, and everywhere as far west as the Continental Divide is found in equal abundance with the rainbow. He is less often found in the North-west, and has not been introduced into Alaska. There are no sea-run brown trout in America.

The attitude of American anglers toward this trout is mixed. There is a slight resentment in some quarters where this introduced trout has replaced the native stock. In most cases such a feeling is unfounded; the native trout have not had the necessary cunning to cope with the increased volume of fishing, whereas the brown does have the ability to survive under tough going. Through hundreds of generations of being pitted against the angler's skill, the brown trout has developed the wariness and select feeding habits which make him a match for the best fishermen. Where the native stock can maintain its own, it is generally agreed that it is unwise to introduce alien species. Where this is not the case, due to over-fishing or a change in water conditions, this trout provides excellent sport where otherwise there would be none.

In any case the brown has provided variety to our native wealth of trout fishing and has presented a fascinating quarry for the serious fisherman. This cautious trout has had much to do with the development of the dry-fly and nymph technique, of fine terminal tackle, and of a careful study and imitation of trout food. This European trout has been responsible for a general improvement in the angling methods and abilities of American fishermen.

The general appearance and habits of this stubborn, yellow-brown trout are familiar to fishermen the world around and bear little repetition here. The trout waters of the United States are unique, however, and present individual problems.

In the Eastern States the supply of trout is maintained by a heavy stocking programme. The concentration of fishermen on public waters is heavy, especially during the six weeks following the opening of the season, which is generally 15th April or 1st May. Closing of private waters to the fishing public is not a common practice in America, although some clubs and individuals are controlling more and more of the better waters near the eastern centres of population. This practice is undesirable, since it throws an undue concentration of fishermen on the remaining open water. Consequently, competition is keen. For success in the East, except during the opening days when the water is roily and the streams well supplied with stocked fish, the angler must be well



PLATE 9

RAINBOW TROUT (*SALMO GAIRDNERII*)



PLATE 10

CUT-THROAT TROUT (*SALMO CLARKII*)

AMERICA

acquainted with the available streams and with the seasonal food conditions. The man who knows the most productive pools and runs of the popular streams, or who knows some of the hidden, unfrequented spots back from the road, can fill his creel quite regularly.

Regardless of how concentrated the fishing is, a certain number of wise trout live on from season to season, and this is a rôle of which the brown trout is a master. Each season, in Pennsylvania or New York State, for instance, many 6- and 8-lb. browns are caught by fishermen who know their water. Of course a trout living in a lake has a better chance to survive the angler's attempts than does a stream fish, and some Eastern lakes produce very large trout. A few years ago a 17-lb. 12-oz. brown was taken on a fly from a city reservoir in upper New York State.

Western rivers are open to one and all, and there's more than room for everyone. The streams of the Black Hills of South Dakota and a large percentage of big waters of the Rocky Mountains contain brown trout. Browns are found in practically all the principal rivers of the eastern slope of the Rockies from the Gunnison of Colorado up to the Flathead of Montana, except the Yellowstone of Wyoming, which has remained a native cut-throat river. Some of the remote sections of these streams are barely touched throughout a whole season. The food supply is good and the browns grow up. The Logan River in Utah has produced brown trout weighing 25 lbs.

There is a great variety of water in the West. Many trout are taken from large, roaring rivers. Such mountain rivers consist of a series of wild, white-water rapids in craggy canyons, interrupted by deep, swirling pools. It is no place for a 3-oz. rod. Large wet flies, spinners, small spoons, or natural minnows fished deep are the advised lures.

In contrast to these rivers, the angler will find an equal number of mountain meadow streams which meander lazily through the open parks. Here it is necessary to use fine terminal tackle and a close imitation of the natural insects.

There is a type of stream to suit the mood or fancy of any fisherman. Much good brown trout water can be reached by automobile and a pair of good legs. The most remote areas are reached only by back packing or a pack train, but it is not necessary to go far from the road anywhere in the mountain States to find room for a backcast.

There is no one set of flies or lures that can be named for brown trout in the great variety of American water. Being a particular eater, the brown will insist on the type of food available at the time in the water where he resides. In the East, bucktails and streamers, small wet flies and nymphs and, for dry flies, a variety of duns, drakes, spinners, sedges, midges, and spiders in size 10 and smaller are recommended. In the West, the same flies plus a selection of large wet flies, a few palmer-tied dries, and a variety of spinning lures are necessary.

Eastern Brook Trout

The Eastern brook trout is the traditional favourite of the American trout fisherman. The combination of his wild and fleeting nature, his beautiful colouring, and his delicately flavoured flesh has inspired volumes of prose and praise from appreciative fishermen since the days of the earliest settlers. The many of us who were introduced to the mysteries and thrills of the angler's world by this spunky little scrapper will forever be thankful to him.

In appearance, this fish is a perfect example of Nature's ability to make her subjects

almost brilliant in colouring, yet not conspicuous or gaudy. The body colour is a rich greenish-brown, interrupted on the back by pale "worm-track" vermiculations, and on the sides by many pale, irregular spots. Also, distributed evenly on both sides of the median line down the side, there are a number of pin-point dots of red and pale blue, which shine almost like tiny jewels on velvet. A red or orange band along the lower side is separated from the white belly by a black border. The lower fins are red with a pure white leading edge.

Through most of his natural range this trout is referred to as simply brook trout or native. This original range in the United States extends from Maine south through the Appalachian Mountains all the way to Georgia, and west from New England along the Great Lakes watershed to Minnesota. Although transplanted widely into other areas, the best fishing for this beautiful trout is in his native lakes and brooks along the northern edge of the States. He still exists throughout his entire native range, although not nearly in the number or size once enjoyed. On the whole, he had disappeared from all lowland waters, attributable in small part to the introduction of other species, but due principally to pollution and the rise in water temperatures resulting from deforestation. Because of this barrier formed by unsuitable lower waters, sea-going eastern brook trout in the United States are a rarity today.

This trout was once fabulously abundant in the streams of New England, New York, northern Pennsylvania, and Michigan. The streams and brackish estuaries of Long Island and Cape Cod were particularly famous. The Saulte Saint Marie rapids in Michigan, now famous for rainbow fishing, once produced brook trout weighing 11 lbs., and specimens up to 6 lbs. were not uncommon elsewhere. Due to the limited food in the confined waters where the brookie makes his home today, a 1-lb. trout is a large one. The exception to this rule is found in the deep, cold lakes and ponds of Maine and northern New Hampshire. News was made this season when a 10-lb. square-tailed beauty was landed in Maine.

This fish demands the purest and coldest of water, and whereas the rainbow and the brown often seek larger water downstream, the brook trout is inclined to move nearer and nearer the source. Thus, even though these fine fish have disappeared from most of the larger waters, there is hardly a single spring-fed brook or rivulet in the North-east, regardless of how tiny it may be, that does not contain brook trout. Sometimes it is surprising how comparatively large a trout may grow in such a place. I have seen foot-long trout in a spring brook so narrow that it would scarcely seem to allow turning-around room.

Too often, however, the limited food supply in some of the mountain brooks and spring ponds has resulted in a stunted strain of brook trout. In many of these the fish mature at 6 or 7 ins. in length, and a 9-incher is an old, heavy-jawed monster. On first finding such a spot, the fisherman naturally assumes that with a year or two's growth the fish will afford fine sport. However, when the fisherman returns in a year, or five years, he finds the trout the same miniature size.

The Eastern brook trout is the best known and most highly regarded of the charr family. On the whole, the charrs are more sluggish and less inclined to rise to the fly than are the rainbow, brown, or cut-throat. Any such condemnation of the brookie, however, is purely imaginary. Where insect food is plentiful, he will feed freely on it. In fact, the largest Eastern brook trout I ever landed in the States—just short of 4 lbs.—was taken on a dry fly. He rose to a No. 12 Yellow May dry just before dusk on a June

evening at Pierce Pond, Maine. It was pitch dark when he allowed the net to be slipped under him.

Regardless of how plentiful the insect food may be, however, the brook trout does have a proclivity for taking any natural bait, even though the tackle is not too deceptive. Thus, when deeply gutted with a large bait hook and horsed from the water on heavy tackle, this trout naturally does not have the opportunity to put on the show of another species which is hooked only on very delicate tackle. Because of his willingness to take bait and his inclination to feed freely regardless of how cold the water, he is a favourite with early-season fishermen. The heat of summer will make him listless or drive him into seclusion.

When found surface feeding, dry flies, as always, must be a fairly close representative of the natural. Wet-fly fishing is the most popular method of taking brookies. The flies used will be more brightly coloured and a little larger in comparison to the size fish than would be the case for browns or rainbows. Favourite brook trout patterns are: Parmachene Belle, Silver Doctor, Red Ibis, Royal Coachman, Jock Scott, McGinty, Yellow Sally, Black Gnat, and Montreal. Bright streamer flies, as well as spinners, small spoons, and other spinning lures are effective. It is seldom necessary in brook trout fishing to use a leader tapered lighter than 1X.

Lake Trout

The lake trout, except under special conditions, has little to offer the light-tackle sportsman. Under the conditions in which he is most commonly caught in the United States, this is the deep-sea fish of fresh water. He is taken by deep trolling with a wire line and spoon or spinner and bait, or by still fishing with bait in deep water. Such fishing has but two things to offer: the great size of the fish and the fascination of probing the unknown and unseen depths.

This is the largest fresh water fish entitled to the name of game fish. Old books mention specimens as large as 120 lbs., which is quite a trout! Today, 75 lbs. seem to be about the maximum, and those over 50 lbs. are rare; 20-pounders, on the other hand, are common.

The laker is omnivorous, eating anything that comes his way, dead or alive. His capacity is almost unlimited, and some of the large specimens have greatly distorted bellies. Inspection of stomach contents shows that he will eat anything from smaller trout to jack-knives.

He is a perfect example of the desire of the charr-like trout for the coldest water. In the southern part of his range, the laker spends the summer months in the deepest water of lakes and when hooked is pulled up like a sack of meal. Under the ice he is active, and in early spring and late fall can be caught by casting in shoal water. The farther north he is found the better game fish he is. In Arctic Alaska he habitually lives in rivers and occasionally wanders in and out of salt water.

The distribution of this enormous trout extends from northern New England and the Great Lakes States north to the Arctic coast of Alaska. In all this area, the appearance of the fish is remarkably similar. I have seen lake trout from a small, isolated New England lake and an Alaskan lake 5,000 miles away that were as alike as two herrings in a school. The markings, typical of most charr, consist of innumerable and irregular pale spots on a dark background. There are no red spots and usually little if any colouring. Those taken from the shallow waters of very cold lakes, as well as those from the Arctic

rivers, exhibit quite a bright flush of deep orange or red along the lower sides. The tail in all specimens is deeply forked.

True to his name, the lake trout is strictly a lake fish in the southern part of his range, even spawning in the still waters. In New England he is a favourite of ice fishermen. The greatest concentration is found in the Great Lakes, where this trout is an important commercial food fish. In these colder waters, small trout up to 6 or 8 lbs. can be caught by casting in shoal water almost any time of year, but the big fellows remain deep. Recommended lake trout sport fishing areas are the Apostle Islands of Wisconsin and Isle Royale of Michigan, both in Lake Superior. The fish will be caught by trolling with fairly heavy tackle, and through sheer weight and power of the trout, the fisherman will have some exciting sport, but never does the laker put up a spectacular or determined battle.

Dolly Varden Trout

The Dolly Varden trout received its name from the colour of the dress worn by the character of the same name in Dickens' novel, "Barnaby Rudge." An imaginative early-day fisherman saw something in the sparkling colour combination of this trout to inspire the name.

As in other charrs, this trout has light spots on a dark background, although the number of such spots is much less than with either the brook trout or the laker. The spots on the back are small; those on the side are as large as the eye. These spots, as well as the colour along the entire lower sides, vary in individuals from lavender to orange. The tail in general has more of a fork than does the brookie, but considerably less than the lake trout. The body is compressed, almost round in section in some individuals, and the snout is rather long and conical.

It is the misfortune of this trout to be found in the same water with the rainbow and the cut-throat, to each of which he is inferior as a game fish. Under different conditions and in an area where members of the trout clan were less plentiful, he would be highly regarded. Only with scarcity does anything become precious, and some day such may be the case with the Dolly Varden. Today, under the encouragement of salmon canneries which maintain that trout are predators in competition with themselves, literally thousands of these pretty trout are mercilessly destroyed each season along the Alaskan seaboard.

In coastwise streams where this trout is full of the vitality afforded by the sea, and when dressed in a silvery coat of mail, he is a very worthwhile game fish. Up to 20 ins. he will take a fly readily and put up a creditable performance. At any size he is easy prey for a flashy spoon or spinner.

This trout is at his best in the cold waters of the northern part of his range. In the Rockies, where big ones are known as bull trout, he is taken by fishing with bait or a spoon in the deep holes of big rivers. Two lbs. is the average weight of the Dolly Varden, and a 10-pounder large.

Arctic Charr

The Arctic charr is an almost mythical member of the American tribe of trout. His very existence has not been sufficiently well established until recently to be included in books on the trout of America. However, this unusual fish does exist in quantities and size in Arctic Alaska, and in these days of ease of travel he takes on great importance.



PLATE 11

BROOK TROUT (*SALVELINUS FONTINALIS*)

N. AMERICA

And regardless of travel conditions, the adventurous nature of the sportsman is intrigued merely by the knowledge of the existence of such a fish.

This rare trout is found only in those streams and rivers which empty into the Arctic Ocean. He is not known anywhere south of Bering Straits, which connect the Arctic Ocean with the Bering Sea. In other words, the Arctic charr is a common fish in the streams which empty on the north side of the Seward Peninsula, but is unknown in those streams a few miles away which empty into the Bering Sea on the south.

This trout is probably related to the Arctic charrs of Greenland and northern Europe, but is unique in appearance. At first sight the male of the species is the most amazing of all trout. It is difficult to conceive such a colour combination in a fish. The body colour is green, slightly darker on the back than on the sides. The throat is white, while the head and heavy jaws are charcoal black with a yellow snout. The sides have fingernail sized spots which are round and peanut shaped. These spots, the lower sides and the entire belly are a glaring orange-red. There is nothing delicate or pleasing about the colour combination.

The female does not have the gaudy colours of the male. She is a trim blue fish with white spots and belly and a touch of yellow on the nose.

The Arctic charr obviously gets most of its growth in the sea. Whether he is an occasional wanderer into salt water or spends most of his life there, as does the salmon, I do not know. I know only from experience that this fish is found in the small rivers and streams of the Arctic Ocean watershed of Alaska during the late summer. Those caught in the Pilgrim River north of Nome in the month of August varied in weight from 4 to 12½ lbs.

Brightly coloured steelhead flies, as well as a No. 1/0 Colorado spinner, produced results. Like a large sea-run Eastern brook trout, the Arctic charr puts up a powerful, rushing battle, but is not a spectacular jumper.

Grayling

The grayling within the boundaries of the United States today is found in such limited numbers that he is no longer of great importance to the fisherman. In two entirely separate areas, Michigan and Montana, this delicate and graceful fish once flourished in amazing quantities. In Michigan, the grayling disappeared forever for anglers when the great pine forests were lumbered off and the once clear streams turned too warm and silty for this fish.

In Montana, the grayling originally occupied all the waters of the upper Missouri River watershed plentifully. It still exists there, but in limited quantity. I have caught more in the Gallatin and Madison Rivers than anywhere else in that area, but that isn't saying much.

A third area in America has grayling in untold numbers today. This is Alaska, the world's greatest natural hatchery of the salmonid tribe. Literally thousands of clear, icy streams in the interior are filled with the Arctic grayling. The headwaters of such rivers as the Kuskokwim, Nushagak, Kvichak, and mighty Yukon contain these strange and beautiful fish. I have watched grayling crowd into the shallows of Tanalion Creek where it enters Lake Clarke in Alaska in such numbers that their sail-like dorsal fins protruded from the surface by the score and waved gently as though in a breeze.

Since the grayling rarely exceeds 20 ins. in length, a light fly rod is in order. He is an ideal dry-fly fish, rising willingly to any of innumerable fly patterns. If he shows any

preference at all, it is for any fly grey in colour. Often he will take a dry-fly in the classical manner, leaping clear of the water in a smooth arc and descending on the fly head first. Small, dark, wet flies fished slowly work well, but there is little need or excuse to go beneath the surface for a fish which will rise to a floater so willingly and gracefully. On light tackle he is perhaps the most spectacular aerial acrobat of them all.

The facts that the grayling is deliciously flavoured and is easy to catch work against him wherever civilisation crowds too closely.

Conclusion

The most fertile trout fishing area in the United States stretches from Maine west through the northern tier of States to the West Coast, plus all the western mountain area. The cream of it all, if such there is, might be the north-western mountain area from western Montana and Wyoming to the Olympic Peninsula of Washington. The best fly-fishing season in this part of the country is late summer when the snows have ceased to melt and the streams are comparatively low and clear.

For trout fishing in the United States and Alaska as a whole, I would recommend three rods: first, a light fly rod, 4 ozs. or less in weight, and 8 ft. in length, for dry-fly and other light-tackle fishing; secondly, a fly rod roughly of the dimensions of 9 ft. length and 6 ozs. weight for the heavier fishing, including Eastern lake fishing, Western bucktail and spinner fishing, and far West steelhead fishing; and thirdly, a light weight, supple bait-casting rod and multiplying reel for casting small spoons and for trolling.

All stream trout are essentially the same in habits, although perhaps the tendency here has been to enlarge on the slight differences rather than to stress the similarities of the various species of trout. Trout are sufficiently closely allied so that a successful trout fisherman, no matter in what part of the world or what the species of trout, will require only one thing to have equal success on American waters, and that is a short time to become acquainted with the particular area in which he has chosen to fish. Trout will be found in sufficient numbers for good sport wherever he may try his luck. Any good fisherman will be inclined to agree after a short trial on American waters.

THE BLACK BASSES

By LOU S. CAINE



OVER a half century ago, in 1881 to be exact, a famous American scientist and angler, Dr James A. Henshall, in one of his books on fish and fishing, said of the black bass, "inch for inch and pound for pound, the gamest fish that swims."

This statement has been a subject of controversy for years, but it can be stated without fear of contradiction that the black bass is the most popular of all American game fish.

There are a number of reasons for this. Pugnacious by nature, the black bass will strike nearly any moving object, whether or not it resembles their natural food. Their fight is spectacular as they break water frequently in an effort to shake the hook. Time and time again they will make powerful, surging runs which, coupled with their bulldog tenacity, test to the utmost the skill of the angler.

Another reason is that the black bass may be taken by all methods of fishing, and on all types of lures. It will readily strike an artificial fly, either wet or dry. It will smash vigorously at all types of casting lures, surface or underwater. It will take a trolled spoon or lure and bite freely on natural bait, dead or alive. No wonder the bass is the favourite of American anglers.

For years it was believed that there were only two species of black bass, the largemouth and the smallmouth. Recently, however, another species, the spotted bass, has been definitely identified. Before going into the more interesting phase of catching these fish and what tackle to use, it is advisable to clarify the various species, so that sportsmen and anglers will be familiar with their different characteristics.

The Largemouth Bass *Micropterus salmoides* (Lacépède)

The colour and markings of all fish will vary greatly, depending upon the waters they inhabit; but usually the largemouth has a dark green back and sides which shade into greenish silver below. Generally, a blackish stripe runs along the sides from the top of the gills to the middle of the caudal fin. In some cases, darker blotches appear along and above the lateral line.

In North America the largemouth is native to the area from southern Canada and Maine through the Mississippi Valley to Northern Mexico, the states bordering the Gulf and Florida, and the Eastern seaboard. Due to extensive transplantings, however, it is now found in nearly every State in the Union.

The largemouth prefers warm sluggish waters which at times border on the muddy

or cloudy side. It averages from 1 to 2 lbs. in weight, the average being heavier in the south, especially in Florida. The world's record, caught on rod and reel, is 22 lbs. 4 ozs.

The Smallmouth Bass *Micropterus dolomieu* (Lacépède)

A golden-bronze green is characteristic of the smallmouth bass. At times, depending upon the background, darker bronze markings appear along the sides, which tend towards vertical patches resembling bands.

The native range of the smallmouth bass is from southern Canada south to northern Alabama and Georgia, and from the Eastern seaboard to as far west as Manitoba. Its present range is now much wider, due to extensive introduction. With the exception of the Gulf States, it is now found in most waters of the United States.

The smallmouth prefers cooler, cleaner water than the largemouth, such as flowing streams and clear lakes; but it is frequently found in the same waters as the largemouth. Its average size is less than that of the largemouth. The world's record, caught on rod and reel, is 14 lbs.

The Spotted Bass *Micropterus punctulatus* (Rafinesque)

This recently recognised species of black bass in the past was confused with the largemouth and smallmouth. It is very similar in colour to the largemouth. Between the lateral line and dorsal fins, the side is studded with a series of diamond-shaped markings which tend to form a definite pattern. Below the lateral line, the colour shades into white; not yellowish or greenish as in the largemouth and smallmouth.

The range of the spotted bass is from southern Illinois, Indiana, Ohio, and West Virginia to Georgia and Florida, thence westward to Texas. Also found in Oklahoma and Kansas.

Just as the spotted bass appropriates some of the characteristics of both the largemouth and smallmouth, it also prefers the waters frequented by both. In the north it is found in the slow-moving streams and mud-bottom lakes preferred by the largemouth, while in the south it is found mostly in the clear, spring-fed lakes and cooler streams with sand or gravel bottoms. Its average size is about that of the smallmouth and there is no official world's record recognised for this species.

Habits

The angler need not be too concerned about the different species of bass, because their habits, methods of capture and the tackle used are the same for all, and from this point on they will be treated as one.

The bass is an omnivorous feeder and is not too particular about its food. Crawfish, helgramites and other larvæ are consumed with readiness along with minnows, frogs, grasshoppers, crickets, worms and flies. Due to the pugnaciousness of the bass, it varies its standard diet with an occasional mouse or water snake and is not averse to the practice of cannibalism.

The spawning of black bass occurs from March in the south to May in the north, although the adult fish are "on the nest" for a period of a month or longer. Their breeding habits are very interesting. Both the male and female, working together, scoop out a shallow nest or depression, usually 2 or 3 ft. in diameter, in the gravel or sand. The eggs are then deposited in it and both fish take turns standing guard and gently fanning the eggs with their fins and tails.

These "nests" are usually in comparatively shallow water and not far from shore. At this time the bass are extremely aggressive and will strike vigorously at anything that comes near—oft-times driving away fish many times their size.

After the young are hatched, the parents maintain constant vigil until such time as the fry are large enough to forage for themselves and leave the nest—then—woe to the stragglers. The solicitude of the parents vanishes, and they attack and consume any of the young that remain. Nature must forewarn the young of this, for they dart rapidly to shallow water, where the larger fish cannot follow, and remain concealed in the weeds or other suitable hiding places.

During their adolescent years bass are inclined to be gregarious and frequently are found in schools. As they increase in size, they prefer a solitary existence and are inclined to take up a permanent abode in some specific spot, like a deep indentation in the shore line, under a sunken log or at the entrance of a tributary stream. The bass will remain here until caught or driven away by a larger fish.

Bass are not too particular in the choice of waters they frequent. They thrive in lakes and ponds, large and small; rivers and streams, swift or slow; with rock, weed, sand or mud bottoms.

In lakes and ponds bass are to be found at the edge of lily-pads, in and around rushes, and especially in sunken weed beds. In rivers and streams bass are found in deep holes at the bends, pools at the foot of rapids, and on the downstream side of boulders, logs, and other obstructions.

Accurate casting is important in bass fishing, especially when one desires to place the lure within inches of a likely looking spot. This requires skill on the part of the angler, and also suitable tackle, which will be treated upon below.

Bass Tackle and Methods of Use

This is not the place for a discussion of the basic principles of fly or bait casting. It is assumed that the reader has an understanding of these, but suitable tackle will be discussed in detail, as well as complete instructions concerning the methods of manipulating the different types of artificial lures.

Bass may be caught by still-fishing, trolling, fly casting, and bait casting. The latter two methods are by all odds the most popular and will be the only ones dealt with here.

Taking bait casting first, the rod should be made of either tempered split-bamboo or tubular tapered seamless steel. While these rods are available in lengths from 4½ to 6 ft., a rod shorter than 5 ft. in length should not be considered, because effective, accurate casting requires a minimum length of 5 ft. The 5 and 5½ ft. lengths are the most popular.

Casting rods are made in *extra-light*, *light*, *medium*, and *stiff* actions. Experience has proved that the action of the rod should be balanced with the size of the line and weight of the lure, if one is to become a really good and effective caster. Balanced tackle not only produces accurate casting, but it also practically eliminates backlashes. Below is a tabulation of the different actions and the recommended lines and lures to use with them:—

The *extra-light* action is for the light-tackle enthusiast who prefers ultra-light rods, lines, and lures. It should be used with 6- or 9-lb. test silk or nylon lines and with lures weighing not more than 3/8 of an oz.

The *light* action is for the angler who prefers light tackle, such as a 9- to 12-lb. test line, and lures weighing not over 5/8 of an oz.

The *medium* action is for heavier fish and heavier lines and lures. It will handle a 15- or 18-lb. test line to perfection and is ideal for surface baits and lures weighing from $\frac{5}{8}$ to $\frac{7}{8}$ of an oz.

The *stiff* action is for heavier lines such as those testing 20 to 30 lbs., and lures weighing $\frac{7}{8}$ of an oz., or over. It is particularly suitable for trolling and handling large fish.

The reel should be the conventional quadruple multiplying level-winding type of bait-casting reel that holds 100 yds. of 15-lb. test silk or nylon line. It should be equipped with a "light" spool made of aluminium or plastic, which are vastly superior to heavy spools made of brass or steel.

The great majority of the bait-casting reels now in use have brass or "heavy" spools, and are not as efficient as those with aluminium spools. The heavier weight of the brass spool causes it to spin for some time after it has been started; however, it takes considerably more force to start it. The aluminium or "light" spool starts with little effort but will not spin as long, for it does not have the weight that gives it momentum.

The lure *pulls* the line from the reel; therefore, the lighter the weight it has to pull, the greater the ease of casting. A reel with a heavy spool will never be found in the hands of an expert.

Roughly speaking, there are three general types of baits or lures, the underwater, the floating and diving, and the surface or topwater; all of which have proved their effectiveness for bass. The proper use of these lures is a subject in itself, so it will be dealt with here.

Underwater lures are slow-sinking baits which travel a foot or more under the surface of the water when retrieved, depending on the speed of reeling. The retrieve should be started instantly when fishing shallow or weedy waters. Reel as slowly as possible at first—only fast enough to give the bait action and to keep it from fouling on the bottom. When retrieving, jerk the rod tip occasionally so as to impart a darting motion to the bait.

In hot weather, when the fish frequent the deep water, or where deep holes or pools are encountered, the following method is most successful. Cast out and allow the bait to sink to the bottom, paying out line from the reel if necessary. Allow it to rest on the bottom for a second or two, then slowly retrieve the lure with a series of upward jerks of the rod tip, taking up the slack line by reeling between jerks. Jerk, reel; jerk, reel; etc. In retrieving, when the lure nears the boat, stop it for a second or two, then if a fish has been following it you are likely to get a strike.

Another type of the underwater bait is a fast-sinking bait which goes deep and *stays* deep. This lure is particularly suitable for bass lurking in deep channels, sunken underwater reefs, and where rocky shores or cliffs jut out of deep water.

When fishing waters where the bottom is covered by moss, best results are obtained by retrieving the bait as close to the moss as possible—without fouling. Here is a simple method of doing this. After the cast is made, and just as the bait hits the water, start counting, "one, two, three," etc. Underwater baits sink about 1 ft. a second. Keep counting until the lure fouls on moss—then on the next cast reduce the count by one or two numbers and the lure will be skimming over the moss.

Floating and diving baits float when at rest, but when the retrieve is started they dive under water to a depth of a foot or two, depending on the speed of reeling. These lures were designed primarily for fishing shallow waters, or weedy waters where the

cover is close to the surface. Do not just "cast out and reel in," but vary the speed of reeling, first slow and then fast, in order to impart an irregular speed to the bait. Intersperse the reeling with a series of jerks of the rod tip, to give the bait a darting motion.

As a general rule, most fish are taken by slow reeling—just fast enough to give the lure a good wiggling action; at other times they are attracted by a "fast" bait—so—vary the speed of reeling accordingly.

Surface or topwater lures always float on top of the water, and remain there during the retrieve. These lures were designed to be fished in spots where large fish are likely to be lying, such as "pockets" or indentations in the shore line, "holes" in lily-pads, and around tree stumps and sunken logs.

Cast as near as possible to such a "spot" and allow the lure to remain *perfectly motionless* for several seconds. Reel in the slack line without moving the bait. Then twitch the rod tip *gently*, causing the bait to quiver—pause—then repeat. Do this several times, then *very slowly* reel in the lure a few feet. Then pause. Then twitch the bait a few times more.

Between pausing and reeling, gently take up all of the slack line, for when a fish strikes, the hook should be "set" at once, and this is impossible with too much slack line.

The fly-casting rod should be made from either tapered, split bamboo or tubular, tapered, seamless steel. Most anglers prefer a rod that can be used for trout and pan-fish as well as bass, and in cases like this, suitable lengths are 8, 8½, and 9 ft. For effective casting, the action of the rod should be balanced with the size of the line. Note that the above reads "action" of the rod and not "weight," for the weight of a rod is not always a true indication of its action. It is the ferrule size and taper that governs the action.

Oft-times the weight of a rod is misleading; it sometimes means the weight of the bamboo only, without guides, ferrules, or reel-seat. Other times it includes the weight of the rod with the ferrules and guides but not the reel-seat. At still other times it means the weight of the complete rod including the reel-seat. Different makers use different systems in marking the weights of their rods.

All of this is quite confusing, so the following table showing the ferrule sizes of different rod actions is given, covering the rod lengths most suitable for bass fishing. This does away with the misleading designation of weight alone, and gives the different types of rods and their respective ferrule sizes, lengths, weights, and lines recommended.

Type	Size Ferrule	Rod Length	Approx. Weight	Line (Tapered)	Line (Level)
Standard Trout	No. 2	8 ft.	5-10 oz.	HDH	E
Standard Trout	No. 2	8½ ft.	5-20 oz.	HDH	E
Standard Trout	No. 2	9 ft.	5-50 oz.	HDH	E
Bass Trout	No. 2½	8½ ft.	5-60 oz.	HCH	D
Bass Trout	No. 2½	9 ft.	5-80 oz.	HCH	D
Bass Trout	No. 2½	9½ ft.	6 oz.	HDH (HCH)	E D
Power-Plus	No. 2½	9 ft.	6-20 oz.	(GBG)	D

Two types of reels are available to the fly-caster: the single action, and the automatic. The choice is largely one of personal preference, but judgment should be used in selecting one whose weight will balance correctly with that of the rod.

The most effective fly-rod lures for bass are the plastic-and-cork-bodied bugs, spinner-and-fly-combinations, and streamer flies. The former are generally fished on the surface by manipulating the rod tip to impart lifelike action to the lure and create

a commotion which will attract the bass. The underwater lures produce best results when retrieved with a series of slow jerks.

However, regardless of the method of fishing or the lure employed, the black bass continues to battle his way into the affections of American sportsmen. This gamester baffles the expert and delights the beginner with his rare inconsistency; at times he'll smash the poorly cast lure of the tyro and will shun the expert offering of the veteran.

His unpredictable antics coupled with an unquenchable fighting spirit find nearly every fresh water angler seeking out the bass at every opportunity. Dr Henshall's statement was not idly made, and today it is receiving ready corroboration from thousands of fishermen who have learned the thrill of hand-to-hand combat with that most worthy antagonist—the black bass.



PLATE 12

DOLLY VARDEN (*SALVELINUS MALMA*)

N. AMERICA

PAN FISH AND FISHING IN THE UNITED STATES

By BYRON W. DALRYMPLE

General



NOW it might seem to you that an angling-minded writer, doing a chapter about the lowly "pan fish" of the United States with full knowledge that it was to appear among chapters dealing with those highly-touted gamesters of the same country, the trouts, the black basses, etc., would be so inhibited as to cringe, wordless, behind his typewriter. After all, fishing rates as the national participant sport in this country, what with roughly twenty-five per cent of the entire population wetting lines each year. And a very healthy lot of the clan take a purist sort of pleasure in somewhat artistic angling for the more dignified game species, and in concocting august theories as to why, on poor days, they come home from their favourite lakes and streams saddened and light in the creel.

At a glance, my situation might seem like that of a very small boy attending a very large and gay party of his elders. He would be shy, bashful, silent, attending well his mother's instructions to speak only when spoken to, and then meekly. In the present case, however, such an assumption would be quite wrong, indeed. As it happens, I have made something of a habit not only of campaigning for a better understanding of the smaller fish, but of fishing for them as well.

Perhaps my attachment may have begun with a feeling of sympathy for those species inhabiting our lakes and streams which so often must themselves play the part of the small boy at the large party. And sympathy, you know, often brings about deeper understanding—not to mention that depth in understanding, more often than not, changes sympathy to admiration. The pan fish of the United States, so the years have taught me, are well able to take care of themselves on the sporting scene!

However, the millions of us throughout the world who have taken old Ike Walton as our hero and his hobby as our own have often and logically enough lost sight of the facts and fish upon which our beginnings were founded. We graduate at a tender age, these days, from the penny hook, the string, the brush-cut pole, what with fine fly rods and all manner of wonderful and artistic angling accoutrements to be had everywhere at extremely nominal prices. Trout, tarpon, muskellunge, marlin, all such aristocrats serve grandly to lead us into forgetful ways about the simple pleasures discarded with childhood habits and their implements.

Well now, none of that is to be deplored. Certain it is that the tools of our modern sport have added illimitably to its pleasures and its stature. And certain it is, too, that

such brilliantly performing gamesters as those just mentioned have proved themselves completely worthy of their exalted positions on the list of sport fish. It does not necessarily follow, however, that the pan fish should acquiesce to comparison with them in any derogatory manner. For it is so obvious and logical that we may add to *their* stature by deducting weight from our tackle—a fact which, oddly, seems to need continuous emphasis—thereby turning the magic trick of making really wonderful and exciting game fish from those species previously considered less seriously than their neighbours.

I have known anglers—the god of tight lines forgive them!—who held themselves above dalliance with the pan fish. Others I have known who fished diligently for little sunfish and bullheads, but who talked bookish talk of trout whenever a company of anglers convened at noonday on some hometown corner. I think it must be that the term “pan fish”, and our crude childhood methods, started us off with a rather misguided philosophy regarding those species which we think of as being less consequential. Or perhaps the fact of their amazing abundance and their willingness to be congenial in swallowing our offerings has made us less appreciative. Just why a group of pint-sized species, each individual differing from his class-mates as radically as lake from stream, should have been lumped together under so inadequate a collective name as “pan fish”, I have never been able to understand. When a name destroys individuality, it automatically and unconsciously casts aspersions. It may have been some gourmet’s compliment—who knows? But it’s not very logical, really, for I have seen three legal trout, bless their bright-spotted sides, leave more waste space in a skillet than one bronze-bellied oldster bluegill!

But then, we cannot remake sporting history. We can only set about improving the future history of angling by remodelling some of our philosophies and conceptions. And this we may do in small part by taking a look at a few of those sprightly and dashing little gamesters with which the United States is so amply and abundantly blessed, and perhaps by thinking in terms which may be rather new to many fishermen throughout the world, terms somewhat changed and artistic, in regard to methods of fishing them.

The numbers, variety, and distribution of the pan fish in this country are—believe me—astounding. Particularly in the East, the South, and the Middle-west, where one finds States dotted by literally thousands of lakes, ponds, and streams, the pan-fishing guide would find words inadequate, instructions as to the best fishing places confused and involved. One lake is as good as another, each having its particularly abundant species, or, more commonly, the majority of them convening myriadly in its waters.

How could one possibly map out for the visitor the exact place, for example, where the best bluegill fishing is to be had in Michigan—when that State boasts some 5,000-odd lakes, the great majority of them well stocked with that species? Indeed, it would be difficult to traverse 10 square miles of territory *anywhere* in this huge land—with the exception of its semi-arid regions—without finding a congenial piece of angling water. And it would be in general downright amazing, should a hook be put down in any one without an eventual pan fish answer to the barbed question.

So then, for resident and visitor alike who have never become acquainted with pan fish and fishing in the United States, unlimited and excellent sport is in store. These smaller fish, which we will look at presently in their various groupings, and individually, have many advantages over the more high-toned game fish. Spring,

summer, or fall, some one of them is always at his best, and co-operative. When that long-planned trip after trout or bass or pike turns out unsuccessfully, one of the pan fish may be depended upon to save the day.

For the tourist who has no opportunity to get into the back country, where often the best of fishing for the classic sport fish is to be had, some lake, pond, or stream is always within easy reach, even of cities such as New York, Detroit, Los Angeles, etc., where one's limit of some one of the little pan fish may be quickly and enjoyably filled. Often actually within city limits a bit of legally fishable water, teeming with perch, sunfish, etc., may be found. As long as such species have food and tolerably clean water in which to live, civilization fails to inhibit their prolific lives. And it is in such places that our pan fish particularly endear themselves to the hurried angler.

More people fish for pan fish in the United States than for all other species combined. And what is more, they *catch* them. Literally millions of the various sunfish species, among others, find their way on to the tables of the nation's fishermen each year. Such gratifying results stem partly from the fact of pan fish abundance—which has been tremendously aided by much State and Federal handling of those species; partly from their close-at-hand availability everywhere; partly from the ease with which such species may be taken. Thus it might be a worthwhile tip to the visitor who wishes to be certain of going home with meaty fishing tales to tell, whether he be expert or tyro, to spend at least some time with the pan fish. For the beginner, chances of success are always excellent. The expert who fails to take limit catches almost anywhere in the country had best revise his estimate of his own ability!

Fishermen progress, so 'tis said, through several stages of metamorphosis: from the stage of wanting to catch a great *number* of fish, to that of wanting to take very *large* fish, and finally to those artistic heights of wanting to gain the most sport in the most artistic manner, regardless of numbers and sizes. For those who happen to be in that first stage of development, the pan fish are an obvious answer. The second stage, of course, we have to pass over, for no frying pan is built to hold fish of a size to accommodate the aspirations of such anglers. The third stage, however, is another matter. Although the majority of fishermen in the United States, like the mass of fishermen in other countries, take their catches with implements such as the long and heavy cane pole and the still-fish hook baited with worm or minnow, what they miss in sport by such equipment cannot be blamed upon their game. All of our pan fish are extremely adaptable to more artistic tackle, and I, along with thousands of other light-tackle fishermen in this country, will personally guarantee fly-rod satisfaction to the sourest cynic who cares to drop a fly on any of our pan fish waters!

During the days while this is being written, I am living beside U.S. 27, the main highway running north and south through central Michigan. My location, which you may easily discover on any map of that State, is in the northern portion of the Lower Peninsula, just 6 miles below the village of Gaylord. Otsego Lake stretches for several miles along the highway at this point, with several State Parks and much open beach within a few feet of this main road, so that any traveller cannot help viewing the whole of the lake as he passes. And, should he feel the urge to fish in it in the same way that I do, he would have merely to stop his car, set up his tackle, and get in.

There are numerous trout streams within a few miles of me, and I of course put in my stint on them every day or so. But it is one of my supreme pleasures, when I have

written myself out of an afternoon, to set up my 4 oz., 8½ ft. fly rod, don my waders, and walk across the road to the lake for an hour or two of bluegill fishing.

Now then, the point I would like to make is this. I use exactly the same leaders and flies as I use for our various trouts. The lake shore has a hard bottom, and is easily wadable. I move slowly along, some few feet from shore, casting my small dry fly upon the calm surface. Presently there is a roil of water. The fish does not leap, as trout often do, but sucks down the small fly in one lightning motion. He is a large one—as bluegill sunfish go—about 10 ins., deep bodied, his sides flat and hard as spring steel.

It is a trick at first to react quickly enough to set the hook. But this time I do set it—yet so viciously does he turn downward with my fly, laying his strong slab side against my pull, that he snaps my fine trout leader, something no fair-sized brook or rainbow has done to me yet this season!

I put on another fly and try again. There is immediate action. I think what excellent sport this is for the beginning fly-fisherman. There's a whole lake to cast over, no snags, no bushes to hang one's line, no current—just flat, calm water. And there's no time for getting discouraged. Strikes come with almost every cast, on good evenings, and fast enough to keep interest high even on the poor evenings when the fish are feeding deep.

This next fellow I bite into solidly. The leader holds, and he is off, tearing circle after circle in the water, bending my light rod nearly double, never letting up for a second. Just for fun, I time him. He's almost up to the net, but he veers from it, racing away so that I have to give line again to save my leader.

It takes me two full minutes to bring him finally to creel as a fish should be played out. Ten inches of brilliantly-coloured, flat-sided bluegill. That's all he is. But he has done as fine a job of fighting his last battle as any trout his size!

Why, I wonder, would anyone be foolish enough to use crude tackle for this fish? Why, he's as doughty a battler as any species in the whole wide world! And I may stand right here, taking my ease in waist-deep calm water, while I land my entire limit, almost any evening! How could larger fish give any more of excitement, action, or satisfaction, with less time spent and less trouble and travel?

This lake, as it happens, is an excellent one for the type of fishing here described. If by chance you ever pass by it, keep it in mind. But there are thousands of others, in all parts of the country, where you may derive the same satisfaction, either wading, or fishing from a boat. And incidentally, boats and various facilities are available on most of our lakes. You will discover that even the "backwoods" lakes usually have some connection with civilization—a few boats for hire, a cabin or two for rent.

This little bluegill-fishing tale, then, will serve to show the pan fish tyro what our smaller fish have to offer. It has another purpose, also. The only tackle you will need anywhere in the United States for pan fish angling will be a light fly rod of 7½ to 9 ft., the lighter the better, either an automatic or single action reel, whichever you prefer, a few leaders of from 6 to 9 ft., and a few small flies—wet, dry, nymphs, or streamers. Fly patterns for pan fish won't make too much difference. Some fishermen like bright patterns, some dull. I cannot believe that the bright-fly theories hold up. Personally, I make no distinction between trout and pan fish flies. I purchase mine for trout fishing, then make them double for all of the sunfish family, the yellow perch, etc. In other words, if you are a trout fisherman, you are already outfitted for pan fishing.

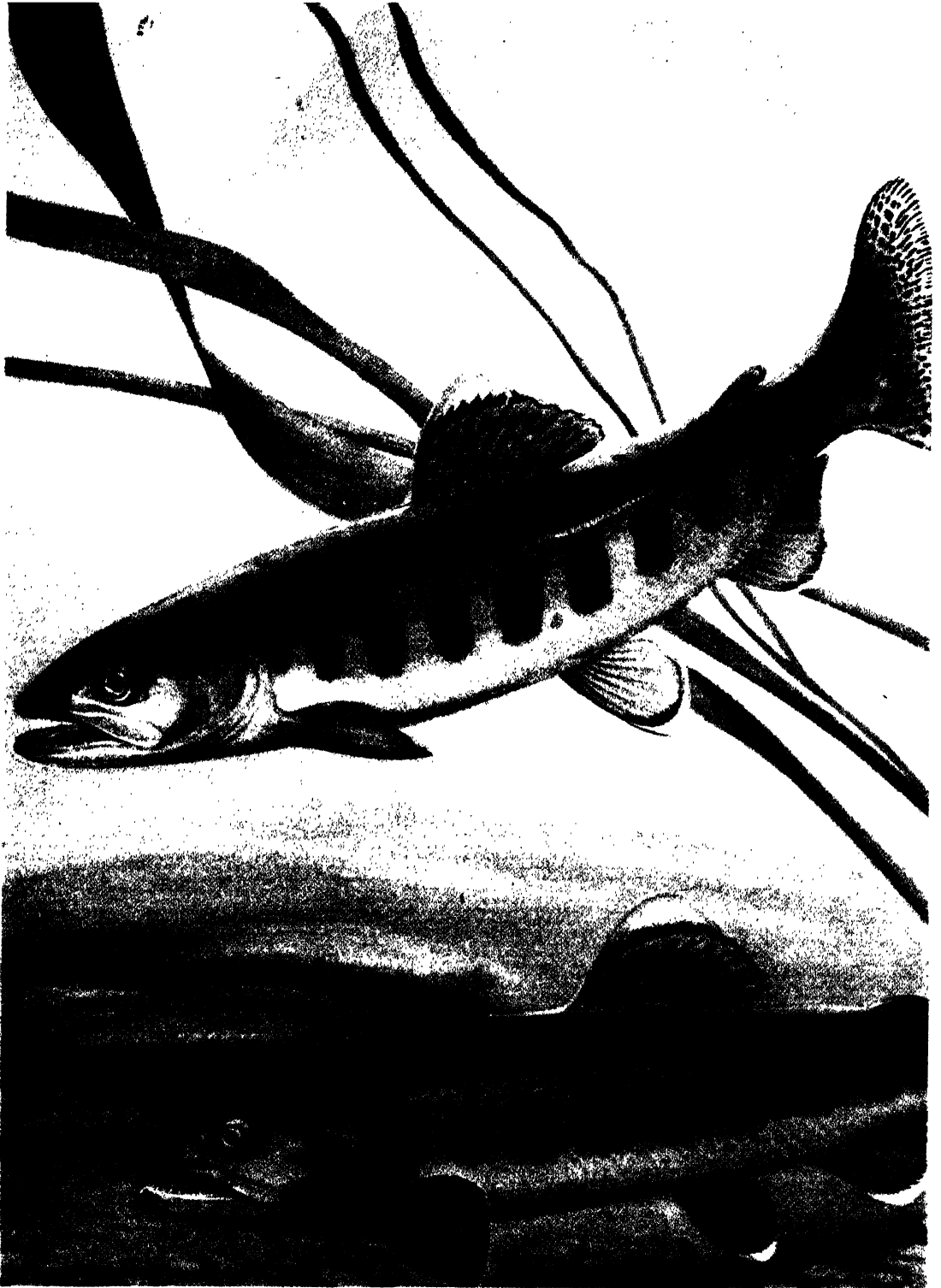


PLATE 13

GOLDEN TROUT (*SALMO AQUA-BONITO*)

AMERICA

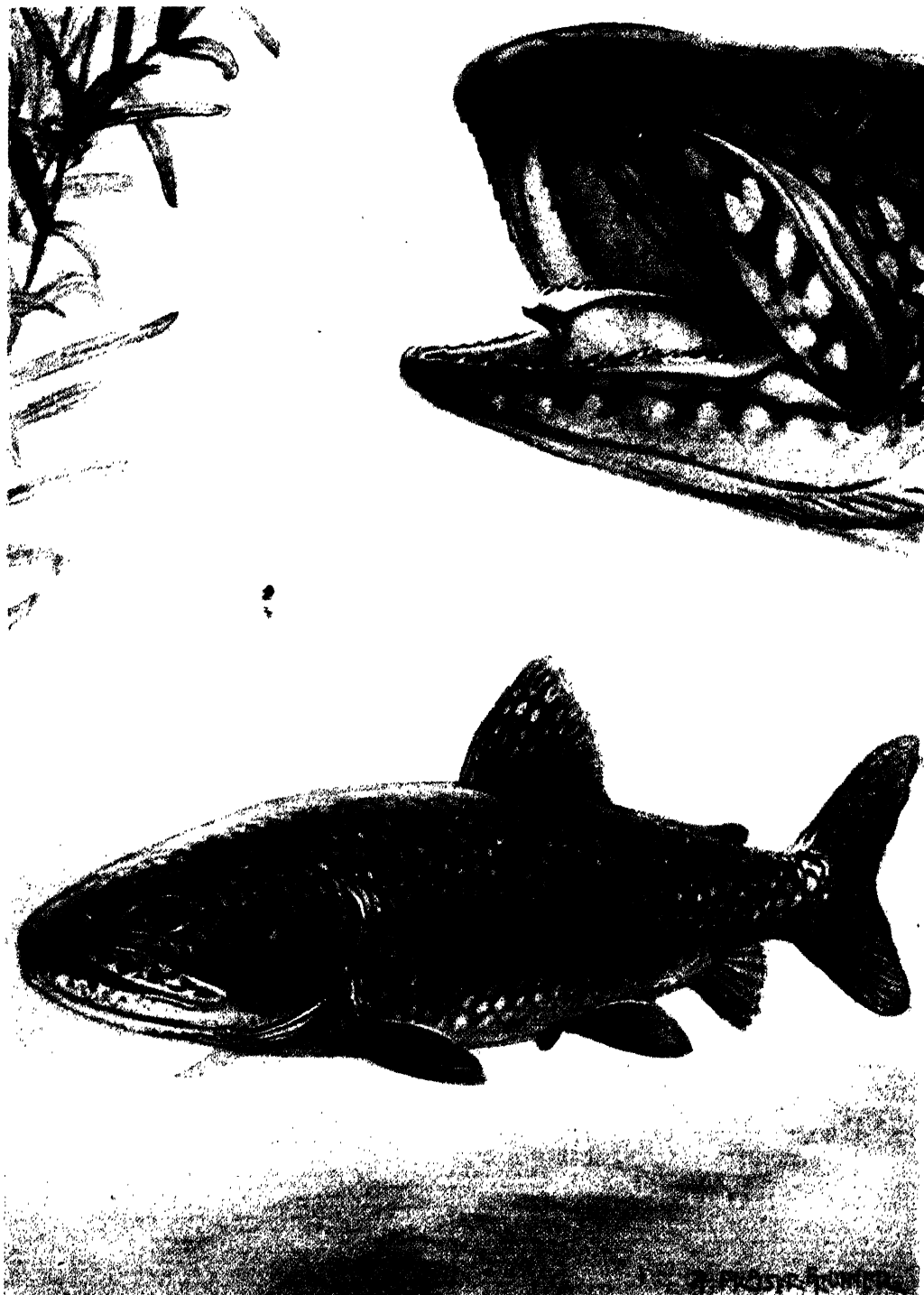


PLATE 14

LAKE TROUT (*CRISTIVOMER NAMAYCUSH*)

AMERICA

If not, and you outfit yourself for either one, you will be automatically prepared for the other.

Not only does the fly casting outfit guarantee you illimitably more sport with our pan fish, but for the tourist and traveller it is easy and compact to store and carry, and may be used for many kinds of fishing, including still-fishing with worms, minnows, etc.

For this last kind of fishing, which will be necessary in the case of the small bull-heads, and which, for those who do not care to cast, is a restful and altogether successful way of taking any of the pan fish, the only other necessary equipment will be a few small hooks, a light float or two, and some split shot for sinkers. It might be well, also, to include a few small copper or pearl spinners. The fly line which is used for more refined fishing will not be harmed in the least if used for still-fishing.

It might just be mentioned that leaders should be quite as long and fine—for fly fishing—as ones used for trout. True, the pan fish are as a rule not as wary as the trouts, but if we wish to take the larger, stronger specimens, we have to keep in mind that they got that way by being watchful and wise. For still-fishing, long leaders are not requisite—a yard of level leader will do—but for fly fishing, especially dry flies, I use a 9 ft. tapered leader. I have had numerous opportunities of comparing my results to those of other fishermen who were careless about leaders, and in those instances the fish I creeled were usually larger. Besides, from a purist point of view, a very fine tippet on your leader forces you to handle your fish daintily. For him, it means a better chance of escape. For you, it means greater pride in your landing skill.

Of course, the pan fish won't mind, I suppose, if you go after them with a long cane pole, or a switch cut from stream or lake side. It may be that the hurried angler, who has but a day here or there, unexpectedly, to spend in fishing, may find it necessary to use whatever equipment is at hand. Surely it is better to fish crudely than not to fish at all. But it should be emphasised that with few exceptions our pan fish are particularly adaptable to light, refined tackle, and that they have altogether as much to offer in line of sport, if thus angled, as do the more aristocratic game fish. For that matter, still-fishing is a hundred per cent more fun with a fly rod, than with a heavy cane pole.

Pan Fish Categories

Certainly I would be somewhat ashamed of my fishing brethren in this country, if any one of them were to prove ignorant of exactly what fish fall into the upper brackets of our pan fish category. But there must be many anglers in other parts of the world whose common fish differ widely from ours, and so we had best review the species of the United States which some insensitive soul long ago lumped under that name I so heartily dislike—pan fish.

The majority of them belong to the sunfish family. There are the black crappie and the white crappie, two very similar species; the rock bass and the warmouth bass, also quite similar; the *true* sunfish, of which there are thirty-odd species in the United States, only some half-dozen of which grow large enough to be of consequence to the sport fisherman. That half-dozen of sunfish, however, forms the most important part of our pan fish class, for they are fished, undoubtedly, by the greatest number of persons, over the widest territory, and it is my opinion that collectively they have the highest sporting value.

Next in importance is the yellow perch, a most prolific and important species, charter member of the huge perch family of world-wide distribution. After the yellow perch, thinking in terms of wide distribution and availability to the greatest number of fishermen, we must name the bullheads, or horned pouts, of which three species, the black bullhead, the yellow bullhead, and the brown bullhead, are the most important.

Of course, a term like "pan fish" can cover as wide or narrow a latitude as individual viewpoint sees fit to give it. I shall try to keep the number of species low, choosing only the best, so that we may be less confused when the time comes to wet our lines in their behalf. The time may also come, worse luck, when some manufacturer of household utensils will bring out a skillet of such huge proportions as to make it necessary to revise all of the fishing books throughout the world. For the present, however, I believe we should limit ourselves to those fish of good sport and table quality whose average maximum size is only a pound or so.

Thus we must surely add three more species to the pan fish of the United States. These three, the white perch, the white bass, and the yellow bass, are no little bit confusing to the layman. All of them belong to the same family, but they are neither perch, nor bass, in the freshwater sense. They belong to the marine family of sea basses. Although both white and yellow bass are strictly fresh water fish, the white perch is a fish of both fresh and brackish waters. These three species are all excellent sport and "eating" fish, but all are somewhat restricted as to range, and thus none of them is of as great importance, nationally, as the other more abundant species.

Of the 13,000 or more fish species known throughout the world, about 600 occur in the waters of the United States. As is true in other countries, by far the greatest number of those species are of no sport or food value to man. They are small fish, serving as forage for commercial and game fish. Many of our States have as many as 150 or more individual species within their borders, and it seems to me that we are particularly well blessed with water systems, and with the number of game species occurring together and getting on congenially in our lakes and streams. Our various Fisheries Departments and Conservation Departments, along with privately organised groups of conservation-minded sport fishermen, are extremely active and have wrought countless miracles for both commercial fishermen and hook-and-line anglers.

We have, of course, a great long list of those species spoken of generally over the world as "rough" fish. There are numerous suckers and minnows, both large and small. Several of these, such as the squawfish, the fallfish, certain of the shiners and chubs, although not greatly relished as food fish, give much sport in certain sections where other game fish are not abundant. The carp, imported perhaps unwisely many years ago, has spread throughout many of our water systems, and it, too, forms food and sport to many anglers.

There are fresh water herrings and whitefish, marine herrings, alewives, and shad which run up into fresh water streams along the Atlantic coast to spawn and are much fished both for sport and food at those seasons. There are several species of toothed herring, or mooneye, herring-like fishes of fresh water which, though restricted as to range and not considered as excellent table fish, readily rise to the fly and fight exceedingly well.

There are sturgeons, eels, gars, the burbot, and the dogfish, and one old fellow who grunts his way about our sluggish rivers and bayous, the fresh water sheephead, or

drum. All of these species, too, add their bit in odd ways and moments and places to the sporting scene. The dogfish in particular, though considered a harmful species and near-worthless as food, is a brilliant fighter when taken on hook and line.

Our catfish family, to which the bullheads, or horned pouts, belong, contains a collection of "whiskered" fish of all sizes and kinds. There are the little stonecats, and several large and abundant species, some weighing a 100 lbs. or more, most of them common in the larger rivers. And of course we must not forget the odd paddlefish, sometimes called "spoonbill cat" but not a catfish at all, which is a relict species of the Mississippi system, known only in the United States and China.

All of these fish, along with our numerous trouts, the grayling, the various black basses, the pikes and the pickerels, the muskellunge, the pike-perch or walleyed pike, make up a tremendously varied fare for a conglomerate mass of fishermen whose tastes in sport and good eating vary altogether as widely. And it seems to me that the whole of sport fishing in this country has as its nucleus the select group of little pan fish previously mentioned. That is why one who writes about them cannot feel like the bashful boy at the large party for grown-ups! It may very well be true throughout the entire world that the pan fish are the most important species ever to take a concealed hook!

For easy reference and a plainer view of United States pan fish, it may be a good idea to set down here a simple list of them, together with their scientific names and a few brief comments, before we touch upon them further.

White Crappie	<i>Pomoxis annularis</i>
Black Crappie	<i>Pomoxis nigro-maculatus</i>
Rock Bass	<i>Ambloplites rupestris</i>
Warmouth Bass	<i>Chaenobryttus coronarius</i>

It may be helpful to state that these four species stand rather between the larger black basses and the *true* sunfish, in the sunfish family, and as sport fish, too. Most specimens taken average up to a pound, but all four grow to maximum weights well above that, whereas the several larger sunfish seldom reach maximum weights above 1 lb., and average less. All four species, like the *true* sunfish, are short, deep-bodied fish with rather large and spiny dorsal and anal fins. One other species should be mentioned, the Sacramento perch, a misnamed member of the sunfish family which is its only native West Coast representative. This fish, *Archoplites interruptus*, grows to 2 ft. in length, though averaging very much smaller, occurs only in the San Joaquin and Sacramento basin and its tributary waters, and is no longer abundant.

Green Sunfish	<i>Lepomis cyanellus</i>
Bluegill Sunfish	<i>Lepomis macrochirus</i>
Pumpkinseed (Common) Sunfish	<i>Lepomis gibbosus</i>
Yellowbreast Sunfish	<i>Lepomis auritus</i>
Long-Eared Sunfish	<i>Lepomis megalotis</i>
Red-Eared Sunfish	<i>Lepomis microlophus</i>

There are many other sunfish, some very small, some large but rare. A few of these are fished in certain sections as sport fish. The six named, however, are the most abundant, most widely distributed, receive the greatest amount of attention from State and Federal hatcheries, and are undoubtedly the ones the average fisherman is most likely to find capering at the end of his line.

Many changes have been made, over the years, in the scientific nomenclature of this group, and thus in older references interested researchers are certain to find these same fish listed under different scientific names. It must be remembered, too, that fish so widely distributed and so much fished are often named by fishermen in various sections to suit colloquial tastes. Thus, the various sunfish, like all of our species—and usually the same is true throughout the world—are called by a great variety of names as we pass from one locality to another. I have attempted here to choose the names used most generally in the better reference books. Don't be surprised, however, if for example you hear a fish you've positively identified as a yellowbreast sunfish called a "Tobaccobox", or any one of a dozen other names. Our classic example, perhaps, is the confusion about the two crappie species. Together, they bear as many as sixty-odd colloquial names!

In reference to the various sunfish, too, it is interesting though somewhat discouraging to the literal-minded fisherman to note that these little fellows interbreed with annoying regularity. In almost any lake where one species occurs, other kinds also often abound, and all of them mingle quite congenially. Thus it is not at all unusual to take hybrids. In fact, in some lakes the brilliant-hued little gents have become so crossed that they are *no* species. The common sunfish, and the bluegill, for instance, may become so mixed up as to be neither, but as much one as the other. In addition, those species with wide ranges have a very great colour variation when they occur in different waters and latitudes. A bluegill, for example, may be definitely of a greenish cast in one lake, and in another very pale and brassy. Older specimens commonly have a pink or purple hue along the sides and have lost the vertical marking which would ordinarily distinguish them.

Yellow Perch *Perca flavescens*

This pan fish has a rather unique reputation in the small-fish group, for it is one of the most important commercial food fish of the Great Lakes region, and at the same time one of the most important of the lesser sport fish over a very wide territory. The huge perch family is composed mostly of fish too small for the sportsman angler, but three large species make up in grand style for the lack of stature among their relatives. These are the walleyed pike and the sand pike, big brothers of the yellow perch, and that "eatingest" of all small American fish, the yellow perch himself. All of these fishes are extremely prolific. The yellow perch holds his own under tremendous commercial and sport fishing pressures. In fact, he clings to his prolific reputation so stubbornly that in certain sections, such as in Minnesota, he becomes a nuisance in many lakes, which are said by anglers to be "perch bound", because thousands of yellow perch have bred themselves out to runts, due to overcrowding, lack of food supply and larger carnivorous species.

Black Bullhead *Ameiurus melas*
 Yellow Bullhead *Ameiurus natalis*
 Brown Bullhead *Ameiurus nebulosus*

It seems true throughout the world that there is much difference of opinion among fishermen in regard to the various catfish. My fellow anglers are no exception. There is no such thing as a lukewarm feeling for the catfish. One either likes to catch and eat them, or heartily despises them. Just why this should be, I've never been quite sure.

Many persons think of them as ugly, repulsive fish. To me they are rather quaint and comical fellows, with habits and personalities so different from their stream and pond mates as to make them especially intriguing. I suppose reader opinion is certain to be radically divided, and thus when I say that bullheads make an excellent table fish, I will be lauded by some, scoffed at by others. Nevertheless it is true, as any enthusiastic "bullheader" will agree. The three small species listed, distributed over a wide area, are very important species in the United States for the simple reason that they will tolerate habitat conditions often entirely unsuitable for the more desirable game fish. Thus the fisherman who happens to find himself visiting or residing in areas where no waters except bullhead ponds occur may at least have *some* fishing. That in itself should put a "Mr" before the bullhead's name!

You cannot expect, of course, that a slow-moving, placid fellow like Mr Bullhead will give you the dashing battle of a trout or a bluegill. But that brings up a point which bears mention, and one which is philosophically worth meditation among anglers. You see, we come to think of "sport" fish as those which leap and race and twist and turn wildly, flashing in the ripples of a stream or splashing grandly in some calm lake. Thus we come often to have a somewhat warped view, for "sport" does not mean that at all. That is, not that *particular* action. If I may quote myself briefly, I recall having written in my book, *Panfish*, a volume given over to light-tackle fishing for the more common fish of the United States: "Fishing is for fun and for everybody, let's not forget that. Therefore, boundary lines should be drawn not by species, but by enjoyment. Ask yourself, 'Is it fun to catch 'em?' If the answer is 'Yes,' then, my friend, you're angling for *Game fish*—and don't be talked out of it!"

It is, you see, the special *kind* of pleasure derived from each species of fish which makes that species important to the fisherman. Some people like to play polo, wrestle, or lift weights, all strenuous sports. Others are keen for sinking into an easy chair and giving their attention to poker or chess. It is a mark of ignorance, intolerance, narrowness, and lack of perspective for the polo addict to say that chess has no appeal, and vice versa. No doubt an open-minded trial in either case would be convincing! There is a certain *kind* of pleasure to be derived from bullhead fishing which no other species in existence can give the angler. How could any fish have a more vital attribute?

White Perch	<i>Morone americana</i>
Yellow Bass	<i>Morone interrupta</i>
White Bass	<i>Lepibema chrysops</i>

Because of the restricted ranges of these fish, we will not spend more time in general comment upon them here, but will cover them further in their proper places. Let us go back, now, to the beginning of our list, bring each species into closer focus, examine each as to more specific details of appearance, habits, habitats, range, and fishing methods. It must be remembered that many of our pan fish, as in other parts of the world, inhabit the same waters. I think offhand of a certain stump-filled backwater region behind a dam on one of our rivers where I have taken both species of crappie, three kinds of sunfish, rock bass, various bullheads, and ¹perch, along with larger game species. Although each fish species has its peculiar habits, its preferences as to food and shelter, it is true of course that many species are quite similar in these respects. Thus it cannot be assumed that a fishing method relating, for example, to crappies, would be unsuitable for bluegills. As we proceed, I shall attempt to suggest fishing methods for each

individual species which lend the greatest *variety* to the refined pan fishing approach. Much of what is suggested regarding one species will apply in the cases of the others, but the reader's fancy and inventiveness must of course bear a certain responsibility, too.

So then, thinking once more in terms of easy reference for those to whom our pan fish are strangers, perhaps it may be best to set down in the brief style of the semi-scientific books the more important facts about each species.

White Crappie

Also known as Silver Bass, Strawberry Bass, Speckled Bass, Papermouth, Newlight, and dozens of other names.

A very narrow, deep-bodied, silvery and greenish fish, flecked with green-black spots which often form indistinct vertical bars. Mouth large for a pan fish, with very thin membrane. Thus careful handling of a hooked fish is indicated. Large, fan-like dorsal and anal fins. Length of snout greater than diameter of eye. Dorsal spines usually six, though sometimes five to seven.

This species is native to the Great Lakes region, and on south to the Gulf of Mexico coast. Natively more abundant southward than its close relative, the black crappie, although ranges are widely overlapping. Has been much handled by hatcheries, and thus may turn up far from its native range.

The white crappie will tolerate very warm, sluggish waters. Mud-bottomed ponds filled with stumps and logs, small lakes and bayous with the same characteristics, weed-filled waters, all these habitats are excellent bets for the fisherman in quest of this species. Feeds on minnows, various small crustaceans, and insects, both aquatic larvae and mature surface insects. Minnows a favourite food.

Black Crappie

Many of the names in use for the White Crappie are interchangeable, for numerous fishermen do not distinguish between the two species. This one, however, is the one most often known as Calico Bass.

Somewhat deeper and shorter than the white crappie, much darker and more mottled. Length of snout about equal to diameter of eye. Although dorsal fin may have only six spines, or as many as ten, usual distinguishing numbers are seven or eight. Range of the black crappie is much the same as that of its relative. More abundant northward, stretches farther east, and south into Texas. Has been widely planted, now appears throughout much of the far west and along the Pacific slope.

Often occurs in the same waters with the white crappie, but shows a marked preference for cooler waters and some currents. Found in many large streams. Feeding habits are quite similar, with perhaps less accent on insect food and more on small minnows.

One quickly noticeable difference between pan fishermen and trout fishermen in the United States is that the pan fish enthusiast always seems pleased to direct you to a good fishing spot, as proud of having been instrumental in sending you home with a good catch as if he had caught the fish himself, while the trout fisherman guards the secret of his favourite pools as one would hoard a bottle of fine old wine. Thus, as directions for finding good pan fishing spots in the United States would fill an encyclopaedia—so many places are there—we shall have to presuppose here that you have already located a lake or pond or stream where you hope to catch some crappies.

Or perhaps that makes you feel a little lost and helpless. All right, here's how you

find "the place." Wherever you happen to be, in whatever city, village, or farm section, you simply ask the first person you see, "How's the fishing around here?"

Now then, if he answers in terms of trout, don't believe a word he says! If he's a pan fisherman, he'll grin from ear to ear and give you so much information you won't be able to remember it, and more than likely he'll drop whatever he's doing and *take* you! If he just stares blankly at you, then you shouldn't associate with him anyway, for no self-respecting U.S. citizen would be completely ignorant of the answer to your question!

So now, by the accepted conversational lead-up to the specific question, you have discovered where crappies abound. Any oldtimer will tell you that minnows are the best bait. Crappies will take worms, crickets, small crawfish, etc., but my experience has seemed to indicate that they love small minnows above all else.

Of course, if you happen to be an avid fly fisherman, and you happen to make your appointment with the crappies when they are surface feeding of an evening, dry flies—or wet flies for that matter—will get you your limit. However, the crappie takes a surface fly very oddly, sucking it down in such a manner as to make him difficult to hook. And, too, the small, single hook of your fly all too often tears free from his tender mouth.

Keeping those items in mind, I concocted my own special and favourite method several years ago. It not only lends variety to the fishing methods you'll use during a season, but assures you much sport as well. Add to your collection of lures a few very small, fly-rod-size floating plugs, most of which are about 1½ ins. long and carry several hooks. During the day, when the fish lie fairly deep, add a small split shot to your leader, cast, let the plug sink, then make a slow hand retrieve. Toward evening, as the fish begin to feed upward, take off the shot, fish the little wriggling plug slowly. It will run just below the surface.

These small lures represent minnows, and seem to be peculiarly successful with both species of crappie. If you have a steel fly rod, or a bamboo rod with which you do not hesitate to troll, toss out the little plug and row slowly around where a school of crappies is feeding. You'll hardly have time to touch the oars before you must grab the rod to play your fish. And you'll find fewer fish will be lost because of hooks tearing free. The light plug will not handicap the fish in giving a good account of himself, but the several hooks will hold him securely.

Of course, in early spring, if you can find a warm stream where crappies are abundant, you may wish to wade and cast a fly. As a suggestion, in this case, try a Yellow Sally pattern. It is a stock favourite for these fish among U.S. fishermen. If you wish to fish with live bait, it is a good idea to put a spinner on above your minnow, let your boat drift with the wind until you get the first strike, then anchor and go to work on what is probably a whole hungry school.

Rock Bass

Often called Goggle-eye, Redeye, etc.

The rock bass has a chunky, bass-like body, except that he combines with it the depth of the sunfish. The iris of his eye is deep maroon. A large mouth for a fish of his size, capable of taking in a large bait at one gulp. Overall appearance brassy-gold, mottled with darker, uneven markings, and with horizontal rows of dark spots. Ranges throughout the Great Lakes region and the upper Mississippi Valley, as far east as the Alleghenies, thence south to the Gulf.

A fish of slow and sluggish small streams, of ponds and the smaller lakes. A slow, content fellow of weed beds and log jams, surprisingly vicious at times in the manner of his strike, but one who tires easily after a brief, brilliant battle. Feeds on minnows, crawfish, insects, worms—not selective or choosy in his diet.

Warmouth Bass

Warmouth bass, and the same names as used for the rock bass, with several additions such as Sun Trout, Big-Mouthed Sunfish, etc.

Quite similar in general shape and appearance to the rock bass, the top of the head a bit more concave, body more profusely mottled and lacking the horizontal rows of even spots. A quick way to distinguish between these similar species is to count the spines of the anal fin. The warmouth has three, the rock bass usually six.

Ranges throughout the Great Lakes region and south to the Gulf.

The warmouth is more sluggish than the rock bass, frequents rather deep holes, lying near the bottom of debris-filled muddy ponds. Weed-choked lakes and ponds, stump-dotted, slow rivers and bayous are his especial delight.

It must be honestly admitted that the rock bass and the warmouth are not as a rule too highly thought of in our fishing circles. One reason may be that they are both inclined to be muddy tasting and not too firm of flesh. Another may be that they lack some of the fighting qualities of our other fish usually found in company with them, and thus most often turn up one or two at a time as "accidentals" among catches of black bass, bluegills, etc. However, a real sport may be developed out of fishing for either of these species, if a suitable piece of water can be found.

Often, in small, sluggish creeks or rivers, rock bass abound. Although this fish will take a fly—a fact well known to black bass fishermen who commonly catch them on large bass flies—one of their preferences is the good old angleworm. By baiting with a worm and using a fly rod to cast it and fish it exactly as you would a wet fly or streamer, a rather novel and extremely enjoyable variety of fishing is to be had.

At places where a slow river empties into a lake, a convention of rock bass or warmouths may be found of a summer evening. These are excellent spots to put down a dry fly. In streams, too, the larger specimens are not adverse to taking a slap at large spinners and plugs. It occurs to me that a quick half hour or so of successful fishing may often be had by the properly licensed tourist or traveller who will pause at a bridge across a small sluggish stream and drop a small plug, a spinner-and-fly combination, or a hook baited with worm, grasshopper, crawfish, etc., into the deep holes around the bridge pilings. Such places are favourite hangouts for the rock bass and the warmouth.

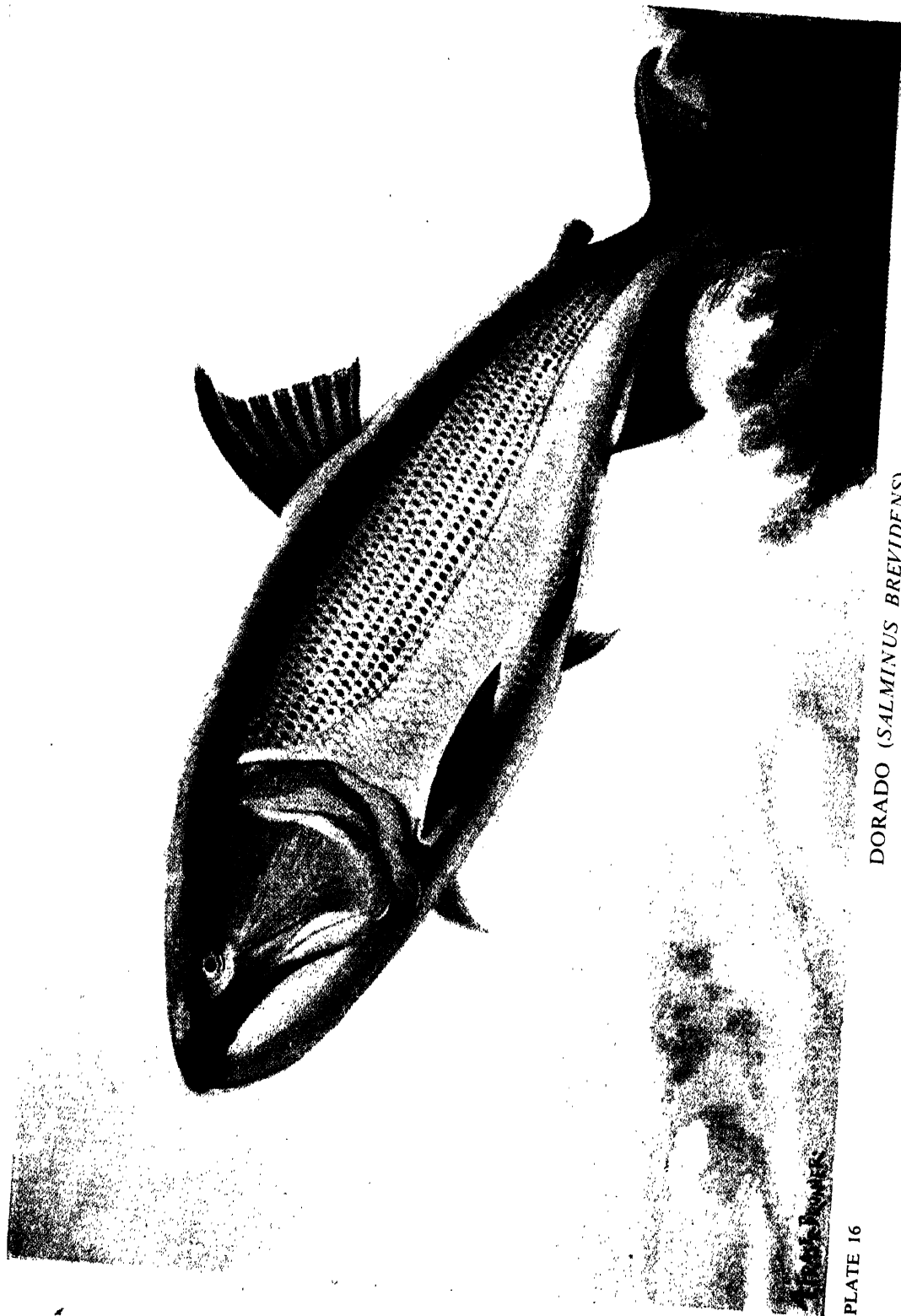
Green Sunfish

Also called Blue Sunfish, Creek Sunfish, Redeye, etc.

This little sunfish is brownish to greenish in colour, somewhat less gaudy than many of his close relatives. The cheek has a few irregular bluish spots, the gill cover flap (opercular, or "ear," flap) will set it apart from other species, for the black opercular spot is confined to the bony portion of the flap. The posterior, membranous portion of the flap is pale coloured, sometimes with a thin line of crimson bordering the black spot.

Ranges throughout the Great Lakes region, into New York State, south to Georgia





DORADO (*SALMINUS BREVIDENS*)

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S. AMERICA

and the Gulf, west to Colorado and the Dakotas, and has been planted in several sections, including California.

Although this little fellow may often occur in small lakes and ponds, he is primarily a lover of the lesser rivers and creeks. Such streams in which he is found are usually sluggish, but I have taken this sunfish several times from trout streams in Pennsylvania and mid-Michigan. As a rule he grows to a maximum size of only from 4 to 6 ins., and is often passed up by the sport fisherman as being too small. However, under correct conditions he may reach 8 ins. In many sections where the larger species are scarce, the green sunfish furnishes good sport and eating. A good little scrapper, if caught on very light tackle.

Bluegill Sunfish

Generally called simply Bluegill, and no doubt the best known and most important of our sunfish. Other names include Dollardee, Bream, Red-breasted Sunfish, etc. As previously mentioned, the bluegill is greatly variable in colour. Generally of a dark greenish hue, with easily distinguishable darker vertical stripes, the throat rust red or yellow to burnt orange, the belly paler. The best way to identify this fellow is by the "ear flap" method. The flap is entirely black, squarish, much elongated in older specimens, and the bone extends almost to the very end of the flap, although the flap is thin and flexible.

The bluegill has been very widely handled by State and Federal authorities. Though he is most abundant in the Great Lakes region, throughout the Mississippi Valley, etc., there seems little doubt but that every State in the United States now has some bluegills in its waters.

Sometimes the bluegill is found in slow streams, but he is best known as a lake fish. Almost all of our lakes which contain bass also have their share of bluegills. Food consists of some minnows and crustaceans, but is predominantly of insect content. He feeds ravenously almost every day during the warm months on surface insects, which makes him extremely adaptable to dry-fly fishing. Grows to 1 ft. long, possibly more, weighs upwards of a pound or better, the record exceeding 2 lbs.

Common Sunfish

Also called Sunny, Pumpkinseed, Kiver, Yellowbelly, and many other names.

A beautiful fish, greatly variable as to colour. Some large old specimens amazingly brilliant, the throat bright yellow, belly and paired fins of paler yellow, many wavy blue lines on the cheek, the upper body dark greenish flecked with yellow. The ear flap is short and stiff, has an elongated red spot behind and beneath the black opercular spot. Sometimes the body bears distinct dark vertical stripes.

Ranges from the Dakotas south, thence east into Florida, northward into Pennsylvania, etc., and extremely abundant throughout the Great Lakes region. Has been much handled by conservationists, also.

This lovable fellow is generally considered a little less active than the bluegill, but often found in his company. Found more commonly, however, in sluggish streams and weedy lakes and ponds. He is very deep-bodied, in large specimens extremely slab-sided and strong, grows to a maximum size approaching that of the bluegill, but never quite as long. Although his food habits are similar to those of the other sunfish, his diet leans heavily toward crustaceans, worms, etc. It has been my

experience that worm-fishing in waters containing both bluegills and common sunfish always produces more of the latter. He will take a surface fly, give a really brilliant battle, but is not as adaptable to this method as is the bluegill.

Yellowbreast Sunfish

Redbreast, Leatherear, Long-eared Sunfish, Tobaccobox, etc.

A less gaudy, though very beautiful and sporty species, the throat, or breast, bright yellow, the cheek with a few wavy blue lines, the body greenish-black shading into a paler belly. Easily distinguishable by the very long and narrow black ear flap.

Predominantly a fish of that portion of the country east of the Alleghenies and below New York, but ranges also somewhat farther north, even into Maine, and west to Minnesota. Common in the south also, in Florida and the Gulf States.

This is the Easterner's favourite, the red-breasted bream, a lover of streams in particular. He'll go up to 1 lb. in weight, and is a top-notch target for the light-tackle fisherman. Feeding habits about the same as those of the other sunfish.

Long-eared Sunfish

Known as the Longear, Tobaccobox, etc.

An amazingly gaudy species, with a red eye, a yellow throat and belly, many wavy blue and orange lines and spots, much orange usually showing in the vertical fins and tail, the ear flap very long and large, with either a blue or a red border.

The distribution of this species is very wide, its concentration of abundance seeming to be in Kentucky, where the longear is extremely common. Ranges throughout the Mississippi Valley, from Minnesota to the Gulf States, and northward to North Carolina.

Large, clear streams are his preference, although often found in clear lakes and ponds. Grows to about 8 ins. maximum, and feeds predominantly upon insects. (Fly fishermen, please note!)

Red-eared Sunfish

Known as the Shellcracker Bream, the Shellcracker, or Western Shellcracker.

Another beautiful fish, a large and husky fellow, with a maximum size well above most of the other species. Blue or green is his predominant colour, with a wide, bright scarlet margin on the ear flap, as suggested by his common name.

Quite generally thought of as a southern fish. Abundant in Florida, Alabama, etc., but ranges as far west as the Rio Grande River, and north up the Mississippi Valley to Iowa and Illinois.

The "shellcracker" name suggests the feeding habits of this fellow. His mouth is built for crushing small molluscs and crustaceans, although he also takes much insect material, and some small fish. His favourite haunts are large lakes, streams, and bayous, where the water temperature is warm.

Wherever you go in the United States, you will find different baits and fishing methods in use for catching the sunfish. Each enthusiast will tell you that *his* bait, or method, is the only one worth bothering with. These stubborn opinions have their value, in that the wise fisherman who ferrets out a collection of them becomes a past master at taking his limit of these excellent little game fish. The worm, the cricket, the grasshopper, these are favourite standbys. But many other unique baits are used with phenomenal

success. Corn borers, bee larvæ, cockroaches, spiders, the small green larvae of a butterfly, which feeds upon the catalpa tree, and for fishing through the ice in winter such tasty morsels as the tiny white grub one finds by splitting open golden rod galls—such are the rather unorthodox, and excellent, baits one may choose.

Of course, it is not entirely true to say that any and all of these baits work the same for all species of sunfish. One must suit the bait to the environment of the particular species, and one must know something about the structural adaptation of that species to its feeding habits. The shellcracker, for example, and the common sunfish, are *structurally* more amenable to baits such as small crawfish tails and garden worms than the bluegill. That is not to say, however, that the bluegill will not take a hook baited with a worm or crawfish tail.

It is difficult to tell the stranger exactly where to fish, that is, at what places in a lake, what depth, etc. Under ordinary conditions, it is safe to say that the drop-offs just out from shore at the edges of weed beds, or around stumps, logs, and pilings, or the pools formed below or behind dams in rivers, all are good bets, and that most such fishing should be done in from 8 to 20 ft. of water. In mid-summer all fish will often seek out very deep holes in lakes, where bottom springs keep the water cooler. I recall having taken many huge bluegills and common sunfish one summer from 50-ft. water, when everything else had failed. But no matter how much or how little is said of bait fishing for the sunfish, really all a fisherman needs—even a very inexperienced fisherman—is a lake or pond or stream known to contain one or more species, a boat or a pair of boots, tackle, the inclination, and the ambition to get his bait down.

However, I cannot but believe it is a mistake to bait fish for the sunfish, especially if one enjoys being active while fishing, since it may be definitely stated that all of these little gents are entirely congenial about taking a fly. For wet-fly fishing, patterns tied to represent spiders, crickets, etc., will be just as good fish getters as the actual bait. The various nymph patterns, which take rather expert handling for they must sink and tumble naturally, will also pay off with good catches. And the dry fly, of course, is perfect.

For the aspirant trout fisherman there's no better practice than fly fishing for the various sunfish. As a matter of fact, I daresay wet-fly fishing for the sunfish requires a greater degree of finesse—for the beginner—than does wet-fly fishing for trout. Don't mistake me. Really good wet-fly trout fishing is no task for the tyro, but almost anyone may take a few trout by simply casting a wet fly across the current and doing nothing but waiting for his fish. In this case, the current does the work. Lake fishing, wet, for the sunfish keeps the fisherman on his toes, for there's no current to keep the line tight or manœuvre the fly.

Every one of the sunfish will take a dry fly, although some species take them better than others. Ordinarily, dry flies will do best in the shallower lakes, where fish always feed in shallow water. In the deeper lakes and ponds, the coves along the shore line are almost certain to be filled with feeding fish, toward sundown. And remember, it is no prophecy of an empty creel when you see no rising fish. I have taken many limit catches on evenings, or afternoons, when no single rise was seen except to my fly. By referring to the notes about each species, it is easy to estimate your chances at that particular one with dry flies. Those which feed predominantly upon insects are naturally best adapted. For the others, use wet flies to copy their natural food.

There is nothing complicated about dry-fly fishing for the sunfish. Choose a small

fly which floats exceptionally well. For remember, when you're lake fishing, the fly won't be riding a current. Therefore, you must twitch it along the surface, for the sunfish like a lively lure. Obviously, a sparse-hackled fly will soon begin to sink, due to the action you impart to it. Once your fly is chosen and well dressed, simply cast it out, give it a slight twitch, no more than an inch or two. Keep repeating this motion. And don't be in too much of a hurry to pick it up. Often, on slow days, the strike won't materialise until the fly has travelled a good distance.

If you discover that undersize fish are bothering your fly, which often happens, simply change to a larger pattern. Keep in mind, however, that sunfish have small mouths. Thus an *extremely* large fly will get you strikes, but few fish.

I have just recently had excellent results with a fluffy white bivisible, the hackle (tied palmer, of course) sparse enough to avoid a bulky appearance, but quite long, and the fly tied on a 12-hook. This fly, I find, floats exceptionally well, is easy for the fisherman to see at all times, is far more easy to cast than the heavier hair bugs so common in the tackle shops. If it gets wet, one false cast will dry it, and if it is attacked by small fish, it presents too much of a mouthful for them.

A whole book could be written, I suppose, about fly fishing for the sunfish, but we must limit ourselves here. My hope is that you try it. If you've never done so, I cannot urge you too strongly to give it a fair comparison with refined fishing for other species such as the trouts. So many fishermen are missing so much good sport—sport practically in their back yards—by lack of realisation that the various sunfish are really far more refined little fellows in their consideration of our offerings than we have always believed!

Yellow Perch

Striped Perch, Ringed Perch, Red Perch, Raccoon Perch, and others.

The yellow perch may be well known to many fishermen over the world. His dorsal fin, separated into one spiny and one soft portion, his elongated, chunky body, yellow below and greenish above, with dark vertical stripes, usually seven in number, quickly identify him. The general colour varies from dark to light in different waters. I have taken very pale yellow and orange coloured fish around the Great Lakes region, and recall others taken in North Dakota which were extremely dark black-green. The head of the yellow perch is quite concave, the back highly arched in front of the dorsal fin.

Extremely abundant in the Great Lakes region, south into Pennsylvania and the Carolinas, west to the Dakotas. Has been widely planted, and of late seems to be doing well on the Pacific coast.

The yellow perch will live in a variety of waters. Found in many rivers, if the current is not too fast, also in a great variety of small lakes and ponds. In the Great Lakes yellow perch are very abundant, grow to large size, and are one of the most important species to the commercial fishermen. Although their feeding habits are predaceous and carnivorous, minnows making up a large share of their diet, they are not selective, but will avidly take a great variety of bait, from worms to surface insects.

I am afraid I cannot truthfully compliment the yellow perch by showing much enthusiasm for him as a fly fisherman's fish, unless we consider the use of small streamer flies. At times, such as when a good hatch of may-flies is on along the Great Lakes, it is possible to make excellent catches of yellow perch by using dry-fly copies which float

in a half-drowned manner. But such instances are of the specific kind, and hardly to be set down as general methods for perch fishing.

The yellow perch will take a worm as well as the next, but I believe by considering his predaceous nature better consistent results may be obtained, for he does much feeding upon small minnows, and these seem to be his special delight. It has been my pleasure each spring for some years to go up the east-Michigan shore along Saginaw Bay, on Lake Huron, when the annual perch spawning run is in full swing. Ordinarily, of course, it is either unlawful or considered rather unsporting to take fish during spawning seasons. But so prolific is the yellow perch, and so abundant in the Great Lakes, that the lawmakers have seen fit in Michigan at least to allow fishing during these runs.

In small streams emptying into the bay, literally hundreds of thousands of large "spawners" swarm. We fish with small minnows, either live or salted, and take fish as fast as the bait can be cast out. These experiences have convinced me that no better bait can be used, although I, too, have taken many perch on worms, crickets, grasshoppers, etc. During the runs, the fish often bite slowly, and thus must usually be still fished. However, during the summer in good perch lakes, small streamer flies which are fair minnow copies are killers for perch. One simply casts from the boat, laying the line if possible in an arc, then makes a hand retrieve, imparting short jerks and pauses to the lure.

Wet flies of various kinds are good for yellow perch, too, and a small spinner and fly combination is also excellent. In fact, if you will try a simple copper or silver drone (a spoon-like lure with a single hook soldered to its concave side), casting it out over perch beds or where a school is known to be roving about, then retrieving with quick darts and turns, you'll find perch can seldom resist it.

You see, any fisherman can take any of the pan fish in as crude a manner as he pleases, but the point I would like this discussion to emphasise is that we should attempt—in the interest of more and better sport—to work the magic of *creating* game species by continually contriving new and refined methods of pan fishing. The yellow perch poses an excellent example. In any waters where this fish occurs, it is doubtful if anyone could fish crudely enough to keep him from biting. Women and youngsters who've had no fishing experience can toss out a worm or a minnow and be assured of good results, under ordinary conditions. I once picked up some small crawfish along the shore of a lake in the mid-west which I happened to be passing, threw out a handline rig baited with crawfish tail—and caught a bucketful of fat yellow perch in an hour.

That experience was enjoyable at the moment, for I was yearning for some fishing even though I had no tackle available. But, had I had the time and the tackle at hand, I could have made *real* sport by taking those fish with a light rod and an artificial lure. They're good little fighters, not exceptional, but fair. Their resistance has little direction, but it serves one extremely pleasant purpose: each time a yellow perch comes into the net, the fisherman knows for certain that he has an "eating" fish which need give no quarter in any section. The yellow perch is without doubt very close to the class of the brook trout when it comes to laying the table for a carefully considered meal!

Black Bullhead

Sometimes called Northern Bullhead, but as far as I know there are no special colloquial names for this species.

All of the bullheads are conservatively coloured. This one usually very dark, as

suggested by the name, green to black, with the belly grey or yellowish. A good mark of identification: never is the belly *white*. The body is chunky and the head flat. A fairly certain way to set it apart from the others is by the shape of the tail, which is almost straight, vertically, at its margin, sometimes however with the suggestion of concavity.

Great Lakes east into upper New York, west to the Dakotas, Colorado, Wyoming, etc., south to Tennessee.

A species frequenting sluggish streams and rivers, and small ponds. Seldom grows to more than 1 ft. in length, feeds on crawfish, small minnows, insects, etc.

Yellow Bullhead

No important colloquial names.

A paler coloured fish which grows somewhat larger, to a maximum 18 ins. or so. The belly is usually bright yellow, the skin appears thin, and the lateral line along the body is conspicuous. Upper body colour, yellowish to tan, sometimes mottled with darker colouring. The barbels on the lower jaw of this species are light coloured, as opposed to the dark barbels on the black bullhead. Its body is also more chunky, and its mouth larger. No suggestion of concavity in tail, and "corners" of tail quite rounded.

The range of the yellow bullhead is quite similar to that of the black bullhead, except that it reaches farther south and east—into New Jersey and southward into Texas also.

More often found in larger ponds and lakes, although water congenial to the black bullhead is not shunned by this species. Feeding habits similar.

Brown Bullhead

Known also as the Speckled Bullhead. Also, all of the bullheads may be known in various sections as Pouts, or Horned Pouts.

This fellow shows quite a wide colour variation, may be yellowish or dark brown, even blackish, is usually mottled (speckled bullhead), is long in the body, has dark chin barbels, and grows sometimes to several pounds in weight. Tail margin definitely suggests a concavity.

The range of the brown bullhead has been greatly widened by plantings, so that he now occurs in the Great Lakes region, New England southward, even into Florida, west into the Dakotas, southward from there, and also on the Pacific coast.

His feeding habits do not differ appreciably from those of his relatives. Weed-choked, muddy lakes, slow and sluggish streams are his preferences.

As is true of all other kinds of fishing, no one can tell you the exact spot where you will be able to catch bullheads at any time you wish. But the little old bullhead is a living example to the fisherman who wishes to adapt his methods to the nature of his fish, for these fish are to a great extent nocturnal feeders. And thus they offer the potentiality of a somewhat different sort of quiet and enjoyable sport to those who will take the trouble to go after them.

A sluggish stream or a muddy, weed-filled pond soon comes to be known in any community as a good location for night "bull-heading." But there are always other good spots to be discovered, too. I think offhand of a large bass-and-bluegill lake where no one ever thinks of fishing for bullheads. Yet I have rowed out to a point which juts

into the lake to form a small, quiet cove, and have sat quietly smoking and still-fishing with my fly rod on warm summer evenings, taking one plump bullhead after another.

It would not be fair to say that the bullheads just mentioned gave me any hair-raising battles. But it would be unfair to say that they gave up without a good healthy struggle. I like to fish for them after a day of hard work, or even after a hard session on a trout stream, for where work or perverse trout can be very irritating and unnerving at times, the little bullhead, bless his cast-iron gullet, is a restful sort, for he will eat anything I choose to offer him, when he's hungry, including a section of my leader and line!

When hooked, he hangs back in his bulldog manner, clamping his strong jaws so tight he couldn't come unhooked if he tried, so that a light fly rod bends and whips excitedly until finally I bring him into the net. If I don't feel like cleaning my catch that night, I have only to dump my collection into a minnow pail, or any cramped, wet place. I can sleep peacefully, assured that on the morrow my breakfast or lunch will be as fresh and lively as ever. Mr Bullhead doesn't give up his hold on life easily, let me tell you!

Bullheads may of course be taken in the daytime, but evening or late into the night is best. A fire, built at the edge of some river, far from frightening them, seems to have some attraction. You can get up a party, spread blankets, enjoy the smell of boiling coffee, while you laze about with your light rod tilted in the fork of a crotched stick pushed into the bank. It's easy fishing, and it's fun. Worms—a good healthy baiting—make as good a lure as any. Liver, bits of beef, etc., will also do well. Many oldtimers have their most secret and special oils and lures, some such complicated and smelly affairs, concocted of rotted chicken blood and so on, that for me an evening's fishing would be ruined simply by the hideous aroma arising from the bait bucket.

Certainly there's nothing difficult about bullheading. The horned pout, as some like to call him, is not a very complicated character. That's what makes fishing for him enjoyable and a little bit different. Night, a good bright fire, a pipe, congenial company and conversation, all those things are a part of my favourite kind of bullhead fishing. Next to doing nothing, I can think of no better occupation for a tired or a lazy man. The fisherman who is willing to lay aside prejudice will certainly admit the pleasure in it, and, if he'll go one step further, he'll find excellent eating when his skinned catch comes crisp and sizzling from the skillet!

White Perch

Sometimes called Silver Perch.

A rather narrow, deep-bodied, greenish and silvery fish, sometimes indistinctly marked with light stripes. Lighter in brackish water than when landlocked. Usual size is up to 10 ins., but may reach well over 1 ft. and a weight of 2 or more lbs. The dorsal fin in two parts, but not completely disconnected.

Range of the white perch is small, from New England down the Atlantic coast to the Carolinas.

It is found in the coastal streams and ponds, either in fresh or brackish water, is landlocked in numerous New England lakes, and in some of the New York City reservoirs. It is thought that the species does not propagate itself when landlocked.

Feeds on insects, crustaceans, minnows, and is said by some conservationists and fishermen to be a spawn eater, thus detrimental to other species.

Easterners do a great deal of fishing for this species whose range denies him to other anglers throughout the country. Worm fishing, with or without a spinner, is often

successful at the mouths of coastal streams, or along the rocky banks. Still-fishing with bait in ponds is also a good method. The white perch usually feeds in fairly shallow water, which makes for good wet-fly fishing. Upstream wet-fly fishing, where the fly is allowed to tumble through a pool, is an excellent way to take these fish, although it is rather difficult for the tyro, because the line is always loose.

The white perch is a bawdy little battler, his flat, strong sides laying a hard pressure against the rod, particularly on his first wild run after he is hooked. Many fishermen claim, however, that they find difficulty in setting the hook in him, even when still-fishing. He is definitely a light-rod species, a worthwhile sport fish for those within his limited domain, and an excellent table fish. It is my opinion that fly-rod casting with worm and spinner or with a small wet-fly gains not only the best results, but points the way towards the most sport. Small minnows also make an excellent bait, with or without a spinner.

Yellow Bass

Also called Barfish, a name used likewise for the White Bass. (Note earlier in chapter that the Yellow Bass is actually a closer relative of the White Perch than of the White Bass, belonging as he does to the same genus as the White Perch.)

A very beautiful fish, but one angled by a very few United States fishermen, due to his rather spotty abundance. Light brassy-gold, shaded with green along the upper body, with dark horizontal stripes from gill cover to base of tail, those below the lateral line interrupted and alternate at a point about even with the anal fin. Not as deep in the body as the white perch, more slender, the back arched and sloping sharply to the head. Dorsal spines very long, stiff, and sharp.

Although the actual range of this fish, determined by specimens taken here and there, reaches as far north as Wisconsin and Minnesota, it is really a southern species, most abundant in the lower Mississippi Valley.

The yellow bass is a fish of large rivers, and of clear shoal waters, often discovered in schools. May grow up to 5 lbs., but usually smaller. An excellent scrapper, I dare say even better than the black bass, but hardly abundant enough, or ranging widely enough, to have become a popular sport fish. Minnows a favourite food.

White Bass

Also called Barfish.

A rather pretty, though conservatively coloured species, silvery, with even rows of dark spots forming horizontal stripes along the entire body. Deep bodied, back highly arched and sloping sharply to a narrow, pointed head and mouth, the lower jaw conspicuously projecting. The ones I have taken have been small, not more than 10 ins. long and upwards of 1 lb. in weight, although the fish may grow to weigh close to 5 lbs. Rather important as a commercial food fish in certain sections around the Great Lakes.

This fish has been planted with unusual success, particularly in some Texas lakes. It is very prolific, under suitable conditions, ranges natively throughout the Great Lakes region, into New York, down the Mississippi Valley. Two of the most famous white bass sections are Wisconsin (the Wolf River, especially during spawning runs) and some of the artificial Texas lakes formed by dam backwaters.

Likes very deep, large lakes, and large streams. Runs in schools, sometimes of huge size, may feed either very deep, or on the surface, difficult to locate, for the





PLATE 18

SPANISH MACKEREL (*SCOMBEROMORUS MACULATUS*)

AMERICA

schools move erratically. When discovered slashing in school of minnows—its favourite food—near the surface, one may take the limit very quickly. On bright days apt to be extremely shy.

The white bass and the yellow bass are very similar in habits. Thus fishing for them is much the same, and quite often they may be found living in the same waters. Undoubtedly the yellow bass has the most spunk of the two species. No bait fills the bill like minnows, and one good way to fish them is to troll, letting the minnow run deep, until you strike a school.

The exasperating, though sporty, part of fishing for either of these excellent fish is that they are most erratic in their movements, on the surface one day, very deep the next, at one end of a large lake on one day, somewhere else, or even seeming to have disappeared when you go after them again.

For the fly-rod enthusiast they are both fine fish. They will strike large plugs at times, but a wet fly, or a small streamer fished with a split shot to take it down deep, will fill your limit in a hurry if you can get into a school. In general, drift fishing and trolling are the two best methods, with streamer casting foremost for those who wish to cast and are somewhat purist in their point of view.

It seems rather regrettable to me that the white bass and yellow bass seem so little known among the mass of fishermen in the United States. But I suppose this cannot be helped, because often anglers are unaware of their presence in nearby waters. You will find, particularly in the Texas lakes where the white bass is now considered something of a miracle fish, due to the success of plantings in near-fishless waters, that local experts have various methods that work well. And, around Wisconsin's Wolf River you will find many anglers to give you tips on stream fishing in the deep holes and swift runs, with minnows or streamer flies, during spawning season. Around Port Huron, Michigan, there are many fishermen who take white bass which come into the river from Lake Huron, but these anglers get little of sport, as a rule, for they fish very deep, using a lead that weighs about as much as the fish they hope to take. It is safe to say that you'll have need of no further information than is herewith set down regarding these two species, unless you get into territory where they are popular—and in that case you'll find much information free for the asking among local enthusiasts.

It would, of course, be pleasant to continue for many pages, setting down facts and anecdotes about our pan fish and fishing for them. Certain it is that much sport has been overlooked in years past by consigning these smaller gamesters to the cane-pole category. Nowadays many of our anglers have become appreciative, yet there is much more of sport to be gained, if we will constantly keep on the lookout for better ways and means, and if we train ourselves to know more solid facts about these species, their habits and structure, their likes and dislikes. By all means give the pan fish of this country a fair trial on light tackle. Along with the voice and the vote I have been attempting, with others, to give them for several years among a greater and greater audience, I will toss in my personal guarantee, worthy or not, that enjoyment and many surprises will be yours!

THE PIKES AND THE WALLEYE

By DAN HOLLAND

The most formidable of our fresh water game fish are the abundant members of the pike family. These five distinct species, found in the northern and eastern United States, vary in size from the 1 lb. mud pickerel to the giant muskellunge. All of them have the family snout—a long affair with a flat top and heavy undershot lower jaw, forked tail, long fine-scaled body and one short dorsal fin situated well aft. From smallest to largest they are the mud pickerel, the barred pickerel, the chain pickerel, the northern pike and the muskellunge. The chain and the barred pickerels are well named to suit their colour patterns. The northern pike, with light irregular spots on a darker greenish or brownish background, is similar in appearance to the common pike of Europe and Asia. The muskellunge, in contrast to the pike, in general, has dark markings on a light background, like leopard spots or tiger stripes. Occasionally pale, silvery specimens are taken.

But colour and pattern can sometimes be misleading, and the only definite clue in distinguishing the various species of pikes is to be found in the scale arrangement on cheeks and gill covers. In the pickerels, both are completely scaled; in the northern pike, the lower half of the opercle (gill cover) is naked; in the muskellunge, the lower halves of both cheek and opercle are bare.

These pikes are primarily northern fish, although on the eastern seaboard you will get pickerels as far south as Florida. The muskellunge and the northern pike are confined to the Ohio River basin north, and to the northern tier of States east of the Rocky Mountains.

The wall-eyed pike, or walleye, is not a pike! It is included here because it has the same general distribution and quite often inhabits the same waters as the true pikes. It has no right to the family name for it is really a large perch, and bears none of the outward traits of the pike family, save excellent teeth.

The walleye is particularly abundant in the Great Lakes region. Although his range extends south to Alabama and Georgia, he is primarily a northern game fish.

The group of fish included in this chapter spawn in the high water of early spring and, except where protected during this period, afford year-round sport.

Muskellunge

Muskellunge is an American Indian word which describes a fish of great size and strength. It is a word which indicates great respect on the part of the native fishermen of the past. Today it is the same. The modern sportsman, with all his fine tackle and angling methods, is equally awed by the mighty and ferocious muskellunge.

This is the master. This is the undisputed king of his range. All lesser fish—and even snakes, ducklings and occasionally muskrats—become grist for his mill. His appetite often leads to cannibalism where the opportunity permits. He is extremely voracious, eating anything and everything that moves. Consequently he grows fast and large. At the end of the first year the muskellunge is 12 ins. long, and eventually he may attain the appalling size of more than 60 lbs.

The total distribution of this fish in the United States covers quite a large area, but nowhere is he very plentiful. Three United States watersheds contain muskellunge. These are the Great Lakes watershed from Minnesota east to the St. Lawrence River in northern New York State, the upper Mississippi River in Minnesota and Wisconsin, and the Ohio River watershed as far south as the Green River in Kentucky. Pollution and erosion have greatly reduced the suitable waters in the Ohio River system. Favourite areas today are in northern Minnesota, Wisconsin, Michigan and New York.

Specifically, some productive muskellunge waters are: in Minnesota, the Lake of the Woods and vicinity, and Leech and Cass lakes and vicinity; in Wisconsin, Eau Claire, Court Oreilles, Chippewa, Lac du Flambeau and Lac Vieux Desert, which is on the Michigan State line; in Michigan, any of several lakes around Grand Traverse Bay, such as Leelanau, Big Platte, Elk, Clam and Torch; and in New York State, Lake Chautauqua in the western end of the State, the Niagara River, which connects Lakes Ontario and Erie, the eastern end of Lake Ontario and the St. Lawrence River, especially the Thousand Islands.

The muskellunge is a solitary bandit. Lying motionless and camouflaged in the shade of weeds and boulders, he waits for his prey. Anything that swims by is suddenly engulfed. Intruders in his domain are either eaten or driven out. He remains quite sedentary and, due to the enormous amount of food a large individual consumes, there is not room for more than one in a limited area, and no great number in any one body of water.

The deeper water on either side of a sand bar or ledge extending across the mouth of a cove is a likely spot for the musky, and edges of beds of pickerel weed and lily pads, or submerged tree tops and logs are favourite hideouts. He is at home both in lakes and large rivers, making his lair in water of medium depth, say 8 to 12 ft., but often feeding on or near the surface.

The muskellunge is the most highly prized fish of the American interior. He has many qualities which account for his fame. Not the least, of course, is his comparative rarity. Another is his great size. Still another is his spectacular method of fighting. But most important of all, I believe, is the fascination of the sheer ferocity of the fish. No angler could help being thrilled by the vicious strike and the lunging, water-frothing battle. He fights as though out of anger. He looks mean and he is mean. He goes through life being tougher than anything he meets, and he comes right down to the wire fighting like a champion.

The muskellunge is caught by three methods: casting, trolling and still-fishing with bait. Most are caught by the first-named method.

Although there are a few enthusiastic sportsmen who fish for muskellunge with a fly rod, the most advisable tackle for these heavyweights is certainly the bait-casting outfit. $4\frac{1}{2}$ to 5 feet is the most popular length rod. For the fisherman who is smart enough to let the fish do most of the fighting, a medium weight is heavy enough. The muskellunge fights frantically, but does not make long, determined runs; so a

casting reel with large capacity is not necessary. 80 yds. of 20 lb. test nylon or water-proofed soft-braided silk is sufficient.

In trolling, the same tackle will do, although in this less exacting type of fishing the tackle is chosen more to suit the sporting inclinations of the fisherman than to fit necessity.

Similar lures are used in both casting and trolling. Plugs, which are wooden or plastic imitations of minnows, are favourites, and many are made specifically for muskellunge fishing. Spinning lures are almost equally popular. The favourite is a red-and-white spoon about $3\frac{1}{2}$ ins. long, and next in preference is a combination fluted spinner and feathered gang hook. 8- or 10-in. chub minnows are often cast or trolled, and these are usually rigged behind a kidney or June-bug spinner.

A wire leader, or trace, 6 or 8 ins. in length, is necessary because of the sharp teeth of the muskellunge. Where a spoon, spinner or other spinning lure is used, a leader with a barrel swivel on one end and a snap swivel on the other is advisable and convenient.

Still-fishing with bait is not a good way to locate muskellunge. Little ground can be covered by this method, and the fish are often widely separated. However, when a big one is discovered and he is too cautious to take an artificial lure, a live minnow allowed to swim around his front yard will be his undoing.

A muskellunge habit not nearly so pronounced in other fresh water fish is that of following. In small open patches among the weeds or in other restricted water, he will often strike the very moment the lure touches the surface, but in open water he is inclined to follow the lure for a considerable distance before striking. A huge swirl alongside the boat as the lure is lifted for another cast is often the first indication that a musky has been giving the fisherman's offering the once over. In river fishing I have had a muskellunge splash water on me with his tail at the end of such a follow.

When a musky does make up his mind to hit, the strike is sudden and vicious. The calm fisherman, if such there is under such circumstances, will strike lightly and let the enraged fish do the rest. His head-shaking tactics and occasional water-clearing leaps will often snap a line held too tightly; then, as is so often the case with the muskellunge, the fisherman will have just another tall story to tell at the end of the day.

Northern Pike

The northern pike is common in comparison to the muskellunge. He is less solitary in habit and his natural range is wider. As the name implies, he is a northern fish and the only member of the pike family found in the Arctic. He is quite common in parts of Alaska, where he is often speared for dog food but rarely caught for sport.

The range of the pike has been extended artificially in the United States, sometimes ill-advisedly. This extremely predacious and prolific fish, when introduced into waters of limited area, occasionally, like a scourge, wipes out everything before it. I once hiked quite a distance to investigate a mysterious New England trout pond where an excited fisherman told me he had lost all his tackle. Sure enough, on the first two strikes, I lost my trout flies. The third fish I handled gently, and before his sharp teeth cut the leader I saw that I had hooked a "snake," as the pike is called where he isn't wanted. Later I returned with a casting rod and pike spoon, and took great delight in catching a raft-full of the intruders.

The two best bass lakes I knew in northern New York State were also ruined by the introduction of pike. I say they were ruined because the lakes were small and, although

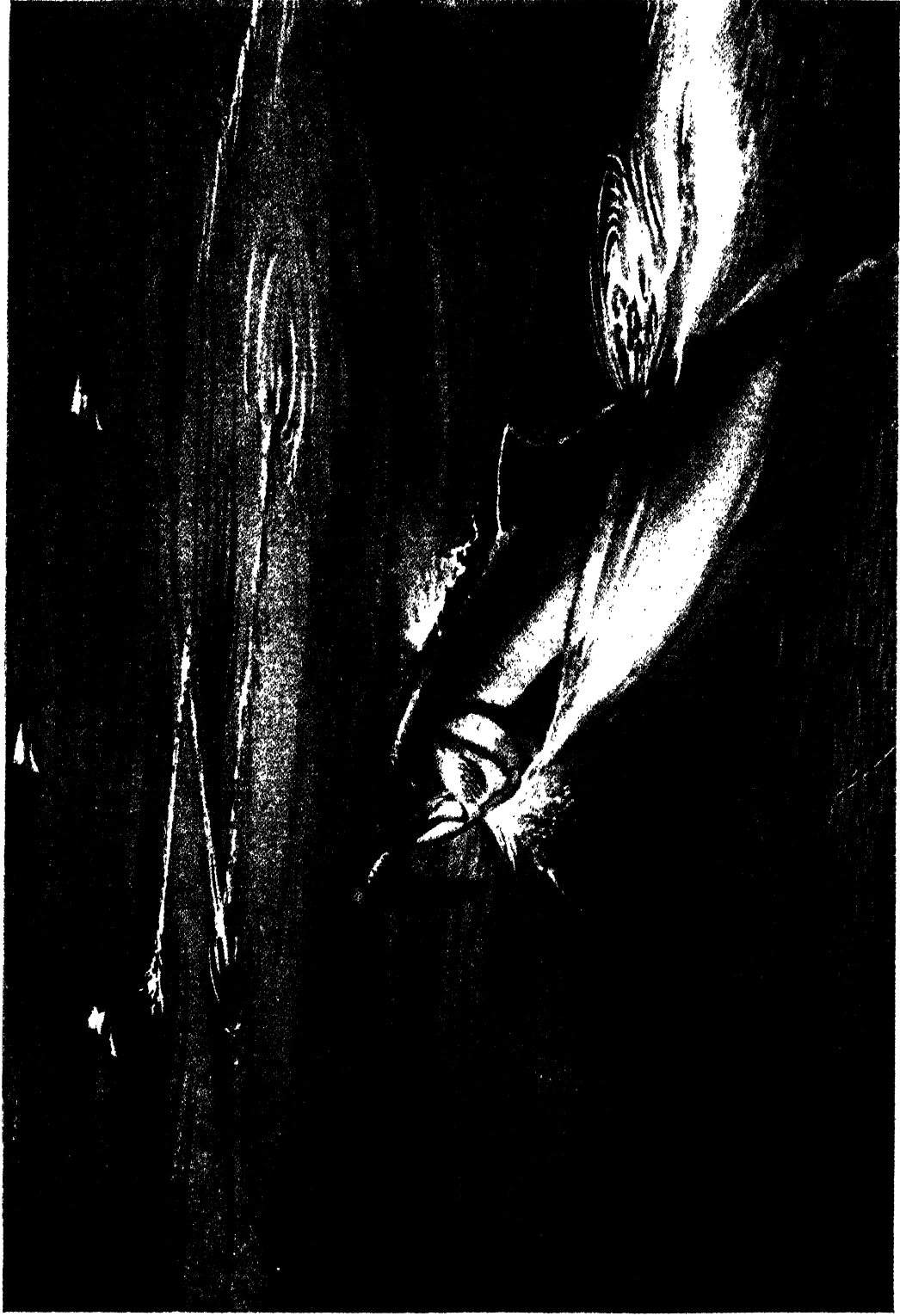


PLATE 19

AMBERJACK (SERIOLA LALANDI)

AMERICA

the pike fishing was good for two or three years, soon these fish had literally eaten themselves out of house and home; then there was neither pike nor bass fishing.

Such instances have made the pike unpopular in many areas, as he is considered a poor substitute for trout or bass. However, in his native waters and where introduced to waters previously barren of game fish, he can afford some very fine sport.

The pike is most at home in shallow, weedy inlets and bays. He lurks along the weed beds or possibly in the weeds with just his head and eyes protruding. Sunken tree tops and logs are also favourite hiding places. I have seen pike follow a lure until it is lifted from the water, then take refuge in the shadow directly under the fisherman's boat. They soon find that this is a mistake.

The pike can lie motionless for hours in his hiding place, then rush out at his unsuspecting prey with lightning speed. This powerful, headlong strike is the pike's main attribute as a game fish. Such a sudden, jolting smash into the lure should be thrilling enough for anyone. When hooked, the pike puts up a frantic although sometimes aimless battle. There is much head shaking and thrashing about, but few prolonged runs. Unless the fisherman becomes equally frantic, he should land a large percentage of those hooked.

The viciousness and voracity of the pike are his outstanding characteristics. I once hooked what I took to be a rather small pike only to have him put up surprising resistance. When I finally worked him within sight I discovered that my 25-in. pike was being held cross-wise in the mouth of a huge specimen! The large one was so determined that I thought for an instant I might land him along with the one on my line.

Some men use a pistol to aid in the landing of these fish. This is both unnecessary and inexcusable. In fact, I have always managed fine without the use of a gaff. The pikes have no sharp-rayed fins, so the only thing to watch is the teeth. A well-played pike can be grasped by squeezing the gill covers with thumb and fingers. He will seldom struggle when so held.

The best lures, of course, are those which imitate small fish. The most effective one in my experience is the pike spoon, bare metal on one side and red-and-white striped on the convex side. Another favourite is the jointed plug with natural scale finish. Some fishermen cast or still-fish with live minnows, but it is seldom necessary to go to this trouble as the pike is a willing striker on artificials. Pike can also be taken by trolling along the weed beds with a combination fluted or kidney spinner and feathered gang hook, but the man who is an accurate caster and can drop his lure back in the pockets among the weeds will get more strikes.

Always use a 6- or 8-in. wire leader ahead of the lure as protection against the pike's razor-like teeth.

The favourite tackle is a 4½- or 5-ft. bait-casting rod with level-winding, multiplying reel. With reasonable judgment, 20-lb. test line is sufficiently strong. Spinning tackle of European design can be used very effectively on these fish, but is not as popular in America as the bait-casting outfit.

For both northern pike and muskellunge some of the best fishing is to be had during the two months following spawning; that is, from about 15th May to 15th July. During midsummer, late July and August, many of the good lakes "bloom"; the water becomes cloudy and the fish either go off their feed or have difficulty in seeing the lure. The fishing picks up again in the autumn and continues through the winter. The members

of the pike tribe offer much ice-fishing sport in the northern States, and in many sections spearing of pike through the ice is allowed.

Although found over quite a large area in the northern part of the United States east of the Rockies, the centre of pike productivity is in the States of Minnesota, Wisconsin and Michigan. There are literally thousands of lakes and flowages in this area providing fair to good northern pike fishing.

The northern pike is a much maligned individual, while his brother the muskellunge is highly respected. There really is no great difference between the two, either in appearance or game qualities, and in size the pike grows to the respectable weight of more than 40 lbs. The answer to the fisherman's attitude lies in the fact that the muskellunge is a comparatively rare prize and the pike is common.

Pickerels

The pickerels are the little brothers of the muskellunge and northern pike. Their habits, predatory inclinations, general appearance and sporting qualities are similar, but on a miniature scale. The average chain pickerel weighs about 3 lbs., and the mud and barred pickerels about 1 lb.

The barred pickerel is confined in range to the eastern seaboard watershed from Maine to Florida. The mud pickerel is found in the upper Mississippi Valley. The chain pickerel is found from Maine to Florida and west in the Southern States to the lower Mississippi watershed. Where their range overlaps that of the muskellunge or pike, they are unable to compete for the sportsman's attention with the larger fish, but in some areas, particularly the north-eastern seaboard States, they are quite popular game fish. They are inhabitants of small, mud-bottomed ponds and streams, preferably with weed growth.

The mud and barred pickerels are so small that they can be considered no more than a pan fish, but as such provide sport for many young fishermen. The chain pickerel, which may attain a weight of 10 lbs., is caught on the bait-casting rod with small plugs, spoons and pork-rind lures, and on a fly rod with spinner flies. Live minnows and other natural baits are particularly effective.

A favourite form of pickerel fishing is called skittering. This is done with a long rod and short line. The lure—a fly, pork rind, frog or strip of other natural bait—is skimmed and jerked along the surface in the holes and pockets among the weed beds.

The pickerel comes into his own in the winter months when ice covers the mill ponds and sluggish rivers. Most other game fish are protected by law or are in a state of semi-hibernation at this time of year, but the pickerel is fair game and is as active and hungry as ever. The frozen ponds of New England become dotted with ice-fishing shacks and "tip-ups." Thoreau described ice-fishing for pickerel in Walden Pond a hundred years ago, and it is little changed today. The tip-up is set at a hole chopped through the ice and is baited with a live minnow. Catching the minnows is sometimes as difficult as catching the pickerel.

For those who are not acquainted with its use the tip-up is a simple trap arrangement which releases a small red flag as a signal to the fisherman that something has taken the bait. Such a line should be handled rapidly, of course, before the fish has a chance to get away taking the precious minnow with him. Tending a dozen tip-ups in zero weather is invigorating sport, to say the least.

Except for his surprising speed, the pickerel has little to commend him as an

outstanding game fish. During the winter, however, the die-hard angler is thankful that he is on hand to provide sport during an otherwise dull period of the fisherman's year.

Wall-eyed Pike

The wall-eyed pike is guilty of an unwitting crime, and that is the number of aliases under which he is disguised. All told, he has perhaps twenty local names in America. He is called a pike, pickerel and even a salmon, but less often a perch, which is his true identity. A visiting angler will be beset by confusing local names attached to many popular species in the United States, but nowhere is this situation so pronounced as with the walleye.

This glassy-eyed individual is actually easily identified, and once seen can be confused with no other species. He is the largest of the perches in America, but only medium-sized as game fish in general are concerned. 3 to 5 pounds is a good weight for most waters, although the walleye does reach a maximum size of 18 lbs. He is trimly built, with the typical perch twin dorsal fins and strong, sharp teeth.

A small sub-species of the walleye is the sauger, which has a maximum length of 18 ins. This fish is so similar in appearance and habits to the walleye that from a sportsman's point of view there is no need to treat the two separately.

To be successful, any fisherman must know something of the natural history of the fish for which he is angling. For instance, a good bass or pike fisherman could cast all day over scores of hungry wall-eyed pike without bringing forth a single strike. This fish lives on a clean bottom of sand, gravel or rock in 10 to 20 ft. of water, and feeds within 2 ft. of the bottom. He is quite nocturnal in habit, and only in the evening and at night will he move into the shallows and strike on or near the surface where bass and pike are normally caught.

The favourite bait for the walleye is the live minnow, and the most common method of angling is still-fishing. Next in effectiveness is trolling, very slowly. A triangle trolling rig, which keeps the lure near but off the bottom, is popular. Walleyes can also be caught by casting a deep-running plug or weighted fly, but these should be retrieved slowly in short spurts. The walleye is a slow striker.

In rivers this fish may be caught in shallower water than is normally the case in lakes. A likely place is under a heavy run. Even in rivers, however, the most productive time to fish is in the evening when the fish move out of the deeper water to feed on the bars and in the shallows. This is the one time that a fly rod can be as useful in walleye fishing as a bait-casting rod. A large bucktail, imitating a minnow, is the best fly-rod lure, but it must be tied on very heavy artificial gut as protection against the walleye's sharp teeth.

May and June, and again in the fall months, are the best times to fish for the wall-eyed pike, but he is not a temperamental fish, and will feed willingly at all times of the year. In the warmer weather it is merely necessary to go a little deeper for him.

Where one is caught there will be more, for he is a sociable fish. Hundreds of thousands are caught each year on hook and line, and since he is extremely prolific—the female laying 50,000 or more eggs yearly—no special stocking programmes are necessary to maintain the quantities in favourable waters. No other species of fish in the mid-west provides sport for so many fishermen as does the walleye. And what he may lack in spectacular qualities he makes up for on the table. There are few finer eating fish in fresh water.

In distribution in the United States, the walleye is found in the greatest concentrations in the Great Lakes States, but provides sport all across the Northern States from the Rockies to New York, and south through the Mississippi Valley to Mississippi, Alabama and Georgia. He is not common in New England nor any of the eastern coastal region. In both range and selection of habitat—that is, lakes and rivers with clean water and a hard bottom—the walleye is similar to that other American favourite, the small-mouthed bass. However, the two do not live harmoniously; in any one body of water, almost unaccountably, one or the other will predominate.

Since most wall-eyed pike are caught by still-fishing or slow trolling, the tackle used is not of prime importance. A typical sporting outfit would consist of a 4- or 5-oz., 5½-ft. rod with multiplying reel, 15-lb. test line and a short wire leader, or trace. The lure will be a live minnow, or one of several artificials, such as a June-bug spinner with pork rind, a fluted spinner with red-and-white feathered gang hook, or a small, deep-running plug.

The wall-eyed pike is a prosaic individual. His habits follow a set and predictable pattern. He can be depended upon to respond in proper fashion to the well-presented lure, and when hooked he puts up a respectable if uninspired battle. He makes no greyhound jumps and no spectacular runs, but merely engages in a sturdy, plodding, dogged struggle. He does all that is expected of him, but quite obviously does not believe in fancy flares and flourishes.

GAME FISHING IN CANADA

Fishing Prospects

Man has fished from the beginning of time. At first he fished for survival—because he was hungry, and the fish were there—but as civilisation crept upon the world and he (or his womenfolk) learned the arts of salting and preserving the game he brought home, the search for food became less urgent. He found new interests; the lure of money drew him away from the teeming forests and rushing rivers. Towns and harbours and trade developed, with all the paraphernalia of commerce and industry, and though he maintained throughout his status as family provider, man—and his weapons—developed with them. The bow-and-arrow and fishing spear became part of the pattern of history, to be immortalised in the twentieth century in the abattoir and the canning factory.

Then why does man go fishing still? He is not obliged to. It can be cold, cheerless and lonely, it can plunge him in an hour's space from wildest exaltation to deepest despair. It can break his heart, separate him from his kind, cost him endless money, and fritter away time that might be better spent—or so the non-angler may think. But the angler knows better, and he knows without question that in spite of all the other attractions that the twentieth century can offer him, angling will remain for him the greatest sport of all.

The fisherman in Canada is on sure ground. The Dominion occupies the whole of the northern part of the North American continent (with the exception of Alaska and part of the coast of Labrador) from the 49th parallel to the North Pole, and from the Atlantic to the Pacific oceans. Its fresh water area (228,307 sq. miles) is larger than that of any other country in the world, and—and this is the point that matters to anglers—owing to the nature of the country the waters are of exceptional coldness and purity. These factors, coldness and purity, determine the gameness and the flavour of fish, and Canadian waters are so diverse in character, and so well stocked with so great a variety of fish, that Canada may truly be said to be the angler's paradise.

There are over twenty varieties of game fish in Canadian waters, and those whose prospects of an angling holiday are dreams rather than realities need have little fear of their being overfished. The Government of each Province takes care of that, for not only is the visiting fisherman welcome and catered for, but the commercial value of the fishing industry is an economic force to be reckoned with, as the following figures show:—

<i>Province</i>	<i>Value of Fishing Industry in Dollars</i>		
Alberta	30,602,150	..	1942
New Brunswick	7,088,302	..	1942
Nova Scotia	14,841,656	..	1944

and 107,952,000 lbs. of salmon were packed in British Columbia in 1941, a record year—I have chosen these figures at random. I do not wish to burden this article with statistics,

but by way of further reassurance I would add that in the Province of Ontario alone the Government hatcheries had the following approximate output in 1946:—

200 million lake trout,
 400,000 brown trout,
 3½ million speckled trout,
 2½ million small-mouth bass,
 2½ million muskellunge,
 250 million wall-eyed pickerel.

The fish are there, right enough, and the choice of location rests with the angler. He can stay in an organised camp or resort, he can choose a luxury hotel, he can make up a party with motor transport and steam-launch (some waters are only accessible by aeroplane), or—and best of all to my mind—he can go with packsack, tent and canoe right up to the virgin country, where the wild creatures will stand and watch him as he passes, never having met the smell of man before. The methods he will use to land his quarry will naturally vary with the type of water, the type of fish he is after, and the Province where he happens to be, and so far as equipment is concerned there is scope for every kind of tackle, from alder-pole-and-bent-pin to all-steel sea-going outfit; every type of lure from mayfly to musky plug, and every type of locomotion from power-boat to wading boots. The only items, in fact, that all Provinces seem to have in common, are good woollen socks and a bottle of “fly-dope” such as D.D.T.

For this reason I strongly recommend all intending anglers who are not familiar with their chosen water to get in touch with the appropriate Government Department in the Province concerned, or a reliable tourist bureau, in order to make himself thoroughly familiar with the local regulations as to the particular sport he wants. This is important, as there is no uniform code for the whole of the Dominion, and licences, close seasons, limits of size and catch, restrictions as to type of lure, etc., vary from Province to Province. He should also get his tackle on the spot, unless he has it already. The big city stores are excellent in their way, but the local dealers can save him a lot of time and trouble, and probably dollars too, since they will not clutter him up with inessentials. Another point is that the Information Bureau will be able to recommend a reliable guide if one is needed, which is generally the case, not merely to show the way but to show the ropes. The average guide is a sound man born and bred in the locality, and he can be of more help to the angler who really wants good fishing than all the theories of the textbooks put together.

In addition to a sound knowledge of the local fishing and game laws, some knowledge of the topography of the district is advisable, and it is a hard-boiled angler indeed who will not feel a mild excitement on choosing his river from such as these—Ecum Secum, Margaree, Musquodoboit, Restigouche, Upsalquitche, Big Sevogle, Little Forks, Jordan, Ste.-Anne-des-Montes, Olomanoshibo, St. Marguerite, Trinity, Old Man, Ashuapmucuan, Pipestone, Musky, Serpentine, New Westminster, Churchill and Elk. There is another thrill, too, in assembling one's tackle, even in looking through one's fly-book in preparation for the trip—Parmachene Belle, Scarlet Ibis, Thunder-and-Lightning, Cinnamon Sedge. As for the fish one is after, here are a few of the species, beginning with the “big fellers”—Tuna (longfin and bluefin), commonly up to 800 lbs.; Swordfish or Broadbill: about 500 lbs.; Muskellunge: up to 60 lbs.; Atlantic Salmon (*salar*): 15–40 lbs.; Pacific Salmon (*oncorhynchus*): 20–80 lbs.; Trout and Char—Rainbow, Speckled or Brook, Quebec Red, Steelhead, Kamloops, Cut-throat, etc.: ¼ lb. to 15 lbs.;

Great Lake Trout (Togue): up to 50 lbs.; Wall-eyed Pickerel: 4-10 lbs.; Bass, large- and smallmouth: 4-8 lbs.; Pike: 5-20 lbs. As I have said, the fish are there. There is sport for everyone, and if he adds to all this a real desire to get on with the job and a proper appreciation of the nature of his craft, the angler off on a fishing trip in Canada need envy no man. Small wonder that the fisherman's prayer is chiefly for humility:—

*“Lord, give me grace to catch a fish
So large that even I,
When talking of it afterwards
May never need to lie.”*

The first thing one generally does when planning a tour of any description is to take out a map of the locality and study it well. A glance at the map of Canada will show the angler that his natural habitat will lie not necessarily in the vast land masses such as the North-West Territories or Keewatin, but rather in the comparatively small Provinces of New Brunswick, Nova Scotia, the coastline of British Columbia and the lakelands of Ontario. This does not mean that the rest of this great continent is negligible from the angler's point of view, for wherever the country has been mapped and explored fishable water has been found. But the mere fact of the vastness of Canada shows that much of it is out of reach of the ordinary fisherman, who has concentrated therefore on the lakes and rivers and coastlines nearer home.

For this reason a fisherman's pilgrimage across the map of Canada will be made more or less in the southern half of the continent. Glad hearts adventuring may venture farther north and no doubt be amply rewarded, but within the limits of this chapter I must confine myself to the better-known waters, crossing the Dominion from coast to coast and trying as I go to give some idea of where the good fishing is available and how good it is likely to be.

Nova Scotia

In a sense, the game fishing in the Province of Nova Scotia is a microcosm of game fishing in Canada as a whole, for every type of sport can be found here, from the tuna, biggest of all the fish, to various species of trout. Tuna weighing up to 800 lbs. are common in the coastal waters, which held up to 1946 the record for the largest specimen ever taken by rod and line in any water in the world. This was the 956-pounder caught by Thomas Howell off Liverpool in August, 1934, and it is of interest that over a period of some forty years every record bar two for bluefin tuna has been made in Nova Scotia waters. Record-hunters and less ambitious sportsmen gather in Nova Scotia year after year for the Annual International Tuna Angling Tournament for the Alton B. Sharp Trophy, and record figures for some of the fishing grounds can make inspiring reading, but I will quote just three outstanding ones—that of S. Kip Farrington, who captured in one day two tuna totalling 1,430 lbs.; of Jack Carpenter at Tusket Rips in 1941 (an 880-lb. tuna on a 24-thread line), and, to show what the novice can do, Miss Joan Lincoln, a thirteen-year-old schoolgirl, who caught a 475-lb. blue-fin off Wedgeport in 1937.

It can be generally accepted that the whole south and east coast of Nova Scotia is potential tuna ground. Longfin are occasionally taken, but blue-fin are the usual run. The bluefin follow the shoals, that is to say, they feed chiefly upon herring and mackerel, so that their movements depend to a large extent upon the movements of the smaller

fish. They reach the southern tip of the Province in the early part of July, and spread steadily northward until by about the beginning of September they are found in great numbers all along the coast. By October they are thinning out a little, and by the end of November have practically disappeared.

The peak period is usually reckoned to be from 15th August to 15th September, and the mecca of the big-fish man is Wedgeport, within easy reach of the famous Tusket tide-rip—also known as Soldier's Rip—a 6-knot tide-stream about a mile wide, in which thousands of tuna feed on the shoals of herring and mackerel. During the season great schools of tuna feed among the rocky Tusket Islands west of Wedgeport, dropping down as far as the Rip on the powerful ebb tide, and running from 50 to 800 lbs. in weight. The potentialities of the Rip were first realised by Michael Lerner in 1935, when, in eight days' fishing, he caught twenty-six tuna, totalling 5,536 lbs. Since then it has well maintained its reputation.

There is less excitement perhaps, but very good tuna fishing, in Shelburne Harbour. This is almost entirely landlocked, but the big fish get there—an 864-pounder being caught by A. Kenney in 1938 that took four and a half hours to land. The same can be said of Jordan Bay, though nowhere does the depth of water exceed 30 ft. and the bay is long and narrow. Feminine anglers have a special feeling for Jordan Bay, for it was here in 1937 that Mrs William Chisholm caught her giant bluefin (760½ lbs.) that still holds the world record for tuna taken by women anglers on rod and line. Because of the shallowness of the water the tuna come to gaff comparatively quickly (though this is not meant as a disparagement of the fair anglers) since the fish cannot bore down when hooked, but this does not apply to Liverpool Bay, where big fish are often taken just outside the harbour mouth, and where in 1939 Mr Fernando Solis landed a 534-pounder in the record time of seventeen minutes. One word of warning—white shark have also been found here.

You can capture big tuna in the harbour of Port Medway, off the La Have Islands (where there are plenty of cod and pollock if you want a rest day), in the Bay of St. Ann and Lunenburg, which is celebrated as the home of the Bank fishing fleet. Lunenburg is fish. Every year well over three thousand men set off for the Grand Banks, and for every one who sails there are a dozen ashore employed in processing and marketing the catch and working in auxiliary industries—over forty commercial varieties of fish are prepared here for the market. The favourite fishing grounds at Lunenburg are off Blue Rock, and the catch average 600 lbs. per fish. These waters are pretty far north, and once Halifax is reached, where there is good sea-fishing of all kinds, the orthodox angler will put up his tackle. But from Halifax northwards the pioneer can come into his own—it is all potential tuna and swordfish water, and is virtually unexplored.

The swordfish is another grand fighter that is found fairly plentifully in Nova Scotia's coastal waters. You will find him working his way northward in the wake of the tuna, reaching his ultimate destination in the waters of Cape Breton Island in the early part of July. Here he stays till mid-September, and you will get fine specimens at Louisburg, Glace Bay and Ingonish, where the special-craft are based, some two to three hundred, consisting largely of motor boats and schooners, with a "pulpit" on the bowsprit for the harpooners and in most cases a steering-wheel rigged in the cross-trees of the mast so that the lookout can actually guide the boat once the fish is sighted. Broadbill only "fin" in a smooth sea. This fish is not so easy to handle as the tuna, though he prefers to do his fighting on the surface. He takes the bait less readily, and



owing to the brittle nature of his jaw-structure must be played warily. Also, he is capable with his sword of slashing the leader, and has the tuna's habit of rolling himself in the line and making off that way. Michael Lerner, the "father" of the Soldier's Rip, holds the present record for broadbill. He hooked one in the belly between the pectoral fins and it fought for four hours, dragging his 16-ft. dory over 12 miles of sea before it was brought to the gaff. It was a 601-pounder, and measured 13 ft. 6 ins. in length and 5 ft. 6 ins. in girth.

Equipment for this heavy sea-fishing varies according to individual taste, but a shoulder-harness is always a wise addition to take the pull of the rod—remember the weight of the tuna, and the fact that he is fighting for his life. There are two methods of fishing successfully for this fish, trolling and "chumming," but this latter is too complicated a process to be described in detail here. It must not be thought, however, that the coastal waters of Nova Scotia are suitable only for the Samsons among us. There is excellent light sea-fishing all along the coast, trolling for herring and mackerel or rod-and-line for pollock—which can sometimes run to 40 lbs. in weight. The pollock will generally take almost any sort of lure and is as game for his size as any sea fish. There is no doubt that the coastal waters of this Province make a good introduction to her inland waterways.

The Atlantic salmon (*salmo salar*) is the uncrowned king of the rivers of Eastern Canada, and practically every stream that flows into the Atlantic Ocean or the Bay of Fundy will afford good sport each summer. Little need be said of the sporting qualities of this magnificent fish. Catches average about 15–20 lbs. in weight, though fish of up to 40 lbs. have been taken, and a specimen weighing 52½ lbs. was landed from the Old Bridge Pool on the Margaree River (by Percy and Cecil Mackenzie) in 1927. This is a celebrated salmon river though it is only 25 miles long, since most of its pools are bordered by sandy beaches or meadowland, so giving the angler plenty of room for his cast. I have room to mention only a few of the best rivers—the Liverpool or Mersey in Queen's County (the most extensive water system in the Province); Medway; La Have; St. Mary's—there are very many others, and good sport in them all.

For my part I would place the Medway at the head of the list. It heads the official list of average annual catches for the years 1941–1945 with 791 fish, and is one of the earliest salmon streams in the whole of Eastern Canada, fish having been taken here as early as February. Its whole 45 miles of length is grand fishable water, but a boat is a necessity. The river noted for heavy fish is the St. Mary's, a most prolific salmon stream and second on the "catches" list with 657. Salmon begin to school into this river on about the 1st of May and keep on running until the snows begin. A 30-pounder is not uncommon. There are, incidentally, two distinct types of salmon in this river, which divide and go their separate ways where the river itself divides (above Stillwater Pool) into East and West St. Mary's. This is an interesting point, but I must leave the natural history of these fish to the experts.

Third on the list comes the lovely La Have river, where the best pools are about 6 miles up from Bridgewater and sport begins also about the 1st of May. The grilse come up in June. The Liverpool or Mersey, which flows from Lake Rossignol to the Atlantic, is another river fishable along its entire length—as I have said, this is the greatest water system in the Province, and a good variety of sport can be expected. Salmon River (Cape St. Breton), Middle River, and Little River, near Cheticamp, all give good catches in July and August, though these are reckoned as among the lesser streams.

Nova Scotia is one of the few provinces where the ouananiche or landlocked salmon is found. He is a native of Quebec, and I will deal more fully with him when I come to his home waters. He is every bit as sporting as the Atlantic salmon, though slightly smaller in size, and you will find him in Grand Lake in Halifax (with the red-striped bass), the lakes of the Grand Lake Watershed and the Dartmouth chain of lakes near Waverley. May, June and late August are best for ouananiche, and he likes a good large fly.

There is no doubt about the quality of the salmon fishing in this Province, but the number of salmon anglers is small compared with those who come after the trout. There is speckled or brook trout in most of the salmon streams and sea-trout in the coastal waters, some of them of considerable size. Fine sport can be had with the Great Lake trout or togue. Opinions vary about this fish; some think him lethargic, and it may be that the larger specimens (they run up to 50 lbs. in some provinces) are poor fighters, but as a rule he gives a good run for one's money, and one can reckon on quite twenty minutes to bring even an 8-pounder to the net. The togue is fairly well distributed—Dollar Lake, Cloud Lake, Green Harbour Lake and Nine Mile Lake, for example. He needs rather specialised handling—a light rod (6–8 ozs.) and the addition of a trolling triangle to the usual tackle is generally used. Trolling is the best method, for these fish love to lie in the coolest—and consequently deepest—spots, and for bait “the ordinary yellow perch, with the skin stripped from the sides but permitted to remain on the head and tail” (I quote from an official guide) is considered excellent. Togue fishing is at its best in July and August, when the speckled trout are falling off a little—the old hands say he will not touch a bait when spawning.

New Brunswick

It is a comparatively short step to the Province of New Brunswick, which is washed on the north and west by the Gulf of St. Lawrence and on the south by the Bay of Fundy. This is all good Atlantic water, and as a consequence most of its rivers and tributaries yield a magnificent harvest of salmon and sea-trout, though there is little sea-fishing in its coastal waters. Not all the water, however, is available for public fishing. New Brunswick is a small Province, and fishing is one of her lifelines, with the result that a strict supervision is maintained over most of her fishing grounds, and much of the water can be held only under lease from the Government. The angler who can secure these rights either as an individual or member of a club is doubly fortunate, but even if he cannot there is excellent sport to be had.

The season opens approximately on the 1st of May (except on the Restigouche River, which is generally a month earlier), but on certain rivers where there is a particularly early run of salmon a special permit is obtainable. An early start is much to be recommended—the hundreds of streams and tributaries that feed the great lakes and rivers are swollen into torrents by the melted snows, and a fishing trip at this time of the year can be an unforgettable experience.

Perhaps the best known river is the Restigouche, the scene in July, 1760, of the last naval battle of the Seven Years' War. It is a far cry from the crash of cannon to the “plop” of a leaping fish, but in all probability the Restigouche was famous for its salmon even in those days, and its waters are jealously guarded today. Other celebrated salmon rivers in this Province are the Nipisiguit, Upsalquitche, St. John, Pokemouche, Tabusintac, Big Sevogle, Salmon, Miramichi, Tobique, Kedgwick and Kouchoubougaci.

these are only a few, and you will find salmon also in the following lakes—Antimori, Juniper, South Oromonto and Loon. It is rare to bring to gaff fish of less than 20 lbs. in weight, and they give splendid sport, rising to the fly as a rule and fighting for every inch of line—boring, twisting and leaping high out of the water, behaving in fact as only the true Atlantic salmon can when the battle is on. The landlocked salmon has been planted in some of the inland lakes and seems to have settled down well.

I will not enumerate any more of the salmon waters here, except indirectly—there are 12,000 miles of highway in New Brunswick, and good salmon fishing can be found at almost any point along the route. For the trout angler the position is much the same. He will get good sport in the inland lakes with the Great Lake trout, though I do not think this fish runs to quite such a size here as he does in some other Provinces, and there is scarcely a river or stream, be it salmon water or not, that will not bring to the fly a speckled beauty. I will name half a dozen of the best trout rivers—Tabusintac, Magaguadavic, Nipisiguit, Green, Piskehegan and Charlo, but as I said of Lunenburg—New Brunswick *is* fish. It is many other things as well to the sportsman, but to the salmon and trout angler it stands supreme.

Salmon and trout—those are the outstanding species in New Brunswick, but the big-fish man does not linger on Prince Edward Island. He leaves it to the trout angler, who is very content that he should. Though the island is small as fishing country goes in the Dominion, there are speckles and sea-trout in almost every river and stream, and countless lakes and lagoons and ponds where you will find them, and the rainbow trout has been introduced successfully into many of the inland waters, including Lake O’Keefe. What is more, the trout of this peaceful island can fight every bit as gallantly as their brethren in the more truculent waters of the mainland. The purist may say that Prince Edward Island is not true game-fish country, but never the trout angler. As he lays out his catch in the evening, arranging them lovingly in order of size, remembering the tricks this one played him, the struggle he had with that—he may well humbly to himself (with apologies to Mr Astaire):—

“ *You’re lovely to look at, delightful to know, and heaven to fish,
A combination like this
Is past forgetting.*”

It is.

Quebec

Crossing the Bay of St. Lawrence to the Province of Quebec, the picture changes. The coastline is the western boundary of the great Atlantic Ocean, and the western land frontier marches for two-thirds of its length with the wild and practically unknown territories of the North-west. The gods of fishing have been good to Quebec, for not only is there a very good variety of game fish to be had, but two distinct species that are native to this Province only—the red trout and the landlocked salmon. There are only three known varieties of the latter—*salmo hardinii*, found in Scandinavia; *salmo sebago*, in the State of Maine, and *salmo ouananiche*, native of Quebec, and smallest of the three. It is true that the ouananiche has been introduced with some success into the inland waters of Nova Scotia, New Brunswick, and Ontario, but it is only in Quebec that he is known to breed naturally. He resembles the Atlantic salmon in everything except size (since he seldom tips the scales at more than 15 lbs.) and in the fact that he spends his

life in the inland waterways, but he ascends the tributary streams to spawn in the higher reaches, returning afterwards to the deep lake water. He is a bonny fighter, and though he may not draw the tang of the salt sea into his gills he can give as good an account of himself as his Atlantic brother.

The angler in search of ouananiche must go to the wild unsettled country north of Laurentides Park, where the widely scattered waterways are scarcely known except to local guides, and fish—including pike, speckled and lake trout—run to tremendous size. This is the Lake St. John country, and you will find the ouananiche in the lake itself and its feeder rivers, the Peribonka, Mistassini and Ashuapmuchuan and their tributary streams. He is fished in the same way as the Atlantic salmon, and is beautiful eating.

The Quebec red trout is not to be confused with the Loch Leven, though he takes his name from the colour of the flesh. He is found most plentifully in the Laurentides Park itself, whose 3,700 square miles of country include almost two thousand lakes and hundreds of rivers. In every known water in this district the red trout has been taken, but though he shares these waters with many other varieties of fish he is never found anywhere else except in the Gaspé Peninsula to the south of Laurentides Park. Like the ouananiche, he prefers to confine himself to his home waters, on the principle perhaps of Mohammed and the mountain. He is a lovely fish, resembling the speckled trout in colour and running up to 8 lbs. in weight, and he has the speckle's fondness for a touch of yellow in the fly.

Quebec has an area of 594,860 square miles, and the best inland fishing grounds are situated in the north and west quarters of the Province, which consists for the most part of unsettled country abounding in well-stocked lakes and rivers. The Atlantic salmon is found at his best in the waters of the Gaspé Peninsula; this is fine salmon country, and catches compare in size and spirit with any taken in less sheltered waters. This is scarcely to be wondered at when one remembers that among the rivers that flow into the Baie de Chaleur is the celebrated Restigouche, bordering the Province of New Brunswick, which, with the Grand, Grand and Little Pabos, Port Daniel, Cascapedia and Bonaventure forms a notable group of salmon streams in this section of the Peninsula. It is fairly safe to say that any river east of the Rimouski will yield good salmon fishing, but strangely enough the salmon is not as generally distributed here as one might expect, and it is but rarely that one finds him further west than Murray Bay. This has not always been the case, for there was once good sport in the St. Lawrence and its tributaries right up as far as the Great Lakes. It may be that *salmo salar* has absorbed a touch of ouananiche reserve and is tending to confine himself more and more to certain favourite waters; time will show, but in the meantime the angler need not worry unduly, for there is still grand fishing to be had along the north shore of the St. Lawrence, from the great Saguenay River east to the Labrador boundary and there are salmon in most of the rivers of the north shore. In Quebec, as in New Brunswick, the Government exercises a strict control over certain waters (to the great advantage of the angler), but here again much can also be done by the man who has not secured these coveted fishing rights.

There is another big game fish in Quebec's inland waters—the muskellunge (*esox masquinony*) or fresh water barracuda, who can turn the scales at 60 lbs. and is not found except in Eastern Canada. He can fight like a tiger, having among other habits the tuna's trick of entangling himself in the line, and is the stubbornest, wildest, ugliest, most vicious inhabitant of Canada's varied waters. You can tackle him in the country





PLATE 22

WHITE SEA BASS (*CYNOSCION NOBILIS*)
GREENLING (*HEXAGRAMMOS DECAGRAMMUS*)
CABEZONE (*SCORPÆNICHTHYS MARMORATUS*)

CALIFORNIA

south of Pontiac, by way of the Ottawa River, and where most of the tributaries of the Schuyan and the Dumoine will give good musky-hunting. You will find him also farther to the north in the Kipawa district and the territory that lies between La Tuque and the northern boundary, and up as far as James Bay (where sturgeon are occasionally found, and a fine sea-trout runs up the coastal rivers). This area is as wild and unpredictable as the muskellunge himself; it is known to comparatively few white men and can offer excellent sport to the angler who likes a little rough-and tumble with his fishing.

There is Great Lake trout in the lakes of the Gaspé Peninsula, in the Saguenay River district, in company with the ouananiche in the waters of Lake St. John, in some of the lakes of Gatineau, and even in the James Bay region. The togue is worth pursuing for himself alone, but he is generally accompanied by the speckled trout—there are, in fact, few streams in the Province where these cannot be found. Very much the same applies to the pike and pickerel. These lesser game fish afford particularly good sport in the Saguenay River district and the southern Laurentians, and muskellunge waters generally yield good pike fishing, but it is in a Province less well endowed with varieties of fish that these smaller fry in the hierarchy come into their own, so I shall deal more fully with them elsewhere.

Ontario

The muskellunge is the "big feller" of the neighbouring Province of Ontario. You will not, of course, find the Atlantic salmon here, but the ouananiche has been introduced experimentally in recent years and can be found in Trout Lake, North Bay. Ontario is the second largest Province in the Dominion, and (as I have already said) it has over 100,000 square miles of water area. This is under careful supervision, so that the existence of good fishing conditions in this Province is a *sine qua non*.

Ontario has taken an official interest in its fish for over eighty years—since 1867, in fact, when the first Dominion fish hatchery was established at Newcastle. There are today twenty-seven of these Government hatcheries, and a certain amount of private re-stocking is carried on as well. It is interesting to recall, now that the shadows of war no longer lie across our waters, that as a result of biological experiments made by an Ontario fisheries expert (F. E. J. Fry) the "automatic oxygen lung" was evolved which made it possible to fly at high altitudes without "blacking out." On the domestic front the research carried out may be less sensational, but its ends are well justified, and as a result of the Province's scientific approach to the question of re-stocking there is no doubt that good sport has been restored to many waters that might otherwise have been badly depleted.

The muskellunge, however, needed no introduction; he was here long ago, and grand sport he has always given. The best time for muskellunge is September or early October, and you will find him in the weedy spots and rocky shallows of many lakes and rivers. The good "musky waters" of Ontario begin a little north-west of Prince Edward—the Rice Lake water and Lake Chemong are famous for big specimens, and so on northwards, via Young's Point, Fenelon Falls and Carnarvon, to Lake Scugog. There are muskellunge in Lake Simcoe (about 40 miles north of Toronto), in North Central Ontario on Georgian Bay, at Honey Harbour, Go Home Bay, and the "Thirty Thousand Islands" of that rocky coast, and up in Northern Ontario itself there is excellent sport on the western arm of Lake Nipissing, in Aiginawassi Lake near Sudbury (the nickel centre),

Wahnipitāe Lake, 20 miles north, and Little Vermillion*, Big Vermillion, Cliff, Cedar and Mystery Lakes, out of Hudson. Further south run the French and Pickerel Rivers, both good for musky fishing, and you will get them, too, in Manitowaning Bay on Manitoulin Island near the north shore of Lake Huron. Lake Lauzon in Algoma has given up some nice catches, and those who take the trouble to canoe up the little-known waterways that lie in Quetico Park will find it well worth while. But the true musky-fisherman will go to the waters south of Fort Frances and Rainy River, in north-west Ontario. The record catch of a 60-pounder was made down here, in Eagle Lake near Dryden, and these are the most famous musky waters in the world.

What I have said about the distribution of the muskellunge applies almost equally to the bass, pike, pickerel and trout, though these, of course, are found in far greater numbers and in a greater variety of water. The small-mouth black bass is the next best fighter to the musky, pound for pound, and you fish him in very much the same way; you will find him in most clear rocky streams, as well as in the lakes. The Georgian Bay, French and Pickerel Rivers are famous for small-mouth, as are the lakes from Georgian Bay to the St. Lawrence, and the Great Lakes—Erie, Huron, Ontario and St. Clair. There are plenty of 4- or 5-pounders in Lake Weslemhoon and Gull Lake in the country north of Kaladar, Long Point, Rondeau Provincial Park, and Meaford—where the keen angler can try his luck at the annual "fishing Derby." There is a lumber-dam on the Opeongo River (Algonquin Park) that can challenge Manitoulin's claim to be the best spot in the Dominion for black bass fishing, and the same might be said of St. Joseph's Island in Algoma. The large-mouth bass is not quite so game a specimen, but is still a good fighter. He is much the same in size as the small-mouth, but likes muddy or weedy water and is found chiefly in the more southerly parts of the Province. Large-mouth bass are plentiful along the Rideau Canal system and the rivers and ponds linked with the Great Lakes.

The pike, strictly speaking, is not a game fish, but he is gamy enough in spite of it, and many a thwarted angler has salvaged his self esteem by hooking into *Esox cucius*. The Great Northern pike is a savage and clumsy fighter, and so long as one remembers that his teeth are like razors he requires no particular skill in handling—he will grab at almost anything, and can eat his own weight (5–20 lbs.) in a day. It is pretty safe to say that where the bass and trout are, there you will find the pike, so he is widely distributed: the Rideau Lake chain, the famous Lake Simcoe, Trout Lake (N. Ontario) and Aighthawassi are locations chosen at random where the pike fishing is excellent. The pike is generally accompanied by the wall-eyed pickerel, a beautiful eating fish with the fighting qualities of the trout family, which is fished commercially in the Great Lakes. It spawns in spring, one of the best-known spawning grounds being Lake Nipissing, and as it is a night feeder gives better sport at dusk. Pickerel of up to 10 lbs. have been taken in the French River and in the northern lakes, but 3–4 lbs. is the average. Perhaps the outstanding pickerel grounds are at Callander—famous to non-anglers as the home of the Dionne quintuplets. The Pickerel River, I may say, fully lives up to its name.

As with pickerel, so with trout—Great Lake, speckled and rainbow, and the brown trout. There is scarcely a swift-running river that will not yield its quota, and the trout of Ontario are good sportsmen. The Bruce Peninsula is famous for its trout fishing—this is the best place for the brown, who is the least common but resembles the speckle

* I regret I have not room to quote from Rex Beach's classic musky story, told in *Yes, my Darling Darter* (Hearst's Int. *Cosmopolitan*, 1940)—a lovely proof of the toughness of both men and musky in Ontario.

in many of his habits. He is plentiful also in northerly waters and the watersheds of James and Hudson Bays. The rainbow trout, another importation, is very similarly distributed, and he runs up to 15 lbs. in weight—some very fine specimens have been taken in the Soo Rapids (they were protected during the war years). Saulte Ste. Marie and beautiful Manitoulin Island are excellent trout centres, but the speckle is the most ubiquitous; not only does he rise in the expected places, but elsewhere as well, as the following quotation shows :—

“There are occasional small bridges crossing the Blue Jay and Manitou rivers on Manitoulin Island. The streams may, in places, look too small to accommodate anything but minnows. But the author of this booklet took a five-pound speckled trout from the Blue Jay at a point where a little log bridge crossed it near Tehkummah.”*

At the foot of Opeongo dam, before the bass come, there is a magnificent run of speckled trout. So far as size goes, a 2-pounder is reckoned as a big fellow in the south, but up in the north of the Province 5–7 lbs. is not unusual. Big specimens have been taken in Lukinta Lake and on Nipigon and Steel Rivers—the world’s record is a 14½-pounder taken (on bait) on the Nipigon.

There are lake trout in almost every deep lake in Ontario, though the spring run is over very quickly as a rule. The enthusiast will find an added thrill in fishing for them through the ice at Lake Simcoe, though this is not as difficult as it sounds, as a little hut and stove are provided and the sport is, in fact, a local industry. Fifty-pounders have been taken at Cape Crocker, and on ever-helpful Opeongo Island the slogan is “twice around the island for two lake trout for lunch.” As a last word, the country from the Nipigon forest boundary to the town of Hearst is a good dream for the trout angler. This is not far from the boundary of Manitoba, and it is the fish of that Province that I will tackle next.

Manitoba

To many people, Manitoba does not come readily to mind as promising fishing country, but this most central of the Provinces is not all wheat and mining land—two-thirds of its area is forest, and its northern waters sustain a flourishing fishing industry. There is plenty of room for the independent angler as well, and though there are perhaps few varieties of game fish there is a wide range. You may find sturgeon in the northern lakes—Cumberland, Namew, Sipiwesk and Winnipeg, as well as in some of the rivers, and if you are out for pike or pickerel you will find them in practically every lake and river in the north and north-east, and occasionally in the south (though this is not reckoned as good fishing country). The area east of the Hudson Bay Railway and north of Lake Winnipeg is trout and grayling country, particularly on the Nelson River. There is scarcely a stream or lake where you will not find them. Speckles run up to 5–6 lbs. in weight and the lake trout are magnificent, tipping the scales at 60 lbs. in Lake St. George in Whitehill Provincial Park. The fishing industry itself is centred round Lakes Winnipeg and Winnipegosis, and Waterhen Lake and Buffalo Bay in Lake of the Woods provide good mixed fishing—there are many indigenous varieties, including whitefish, tullibee and goldeneye. There is still a good deal to be learned about the potentialities of Manitoba’s fishing-grounds, for much of the country has been opened up comparatively

* *Fishing for Fun in Ontario*, pubd. Dept. Trav. & Publicity, Toronto.

recently and there is good scope for the pioneering angler, so long as he is careful not to lose his way. For the less ambitious, or those who cannot penetrate far over the "civilised" border, the best locations in the south of the Province include Seven Sisters Falls, St. Laurent and Dauphin Beach.

As with Manitoba, so with Saskatchewan—the best fishing-grounds lie in the northern half of the Province, and since there is as yet little commercial development in this region the individual angler has things pretty much his own way. They are much to his liking, too. The Provincial Government is well aware of the advantages of good fishing, and has recently planted Loch Leven, rainbow and brown trout in Fisherman's Creek and the Cypress Hills waters. Lake trout are abundant in the north, particularly in Crean and Kingswear Lakes in Prince Albert National Park, and the waters around Big River and St. Walburg, particularly Cold Lake. The Waterhen Lake district is favoured for most types of fish, the streams run clear and cold, and pike, pickerel and native species like whitefish and goldeneye are generally distributed. There is certainly sport in the south-eastern waters, too, particularly in the Qu'Appelle Valley system (which includes a number of good lakes), and the well-known Fishing Lake near Wadena. Once more the man who paddles his own canoe can break new country, and it is widely accepted that though this Province may not have many types of game fish those that she has are of grand quality, whether they be at the end of the line or on the supper table.

The median line of the Dominion runs through the Province of Manitoba, and the angler turning to Alberta comes to Western Canada proper. The best waters are located in the foothills district, which includes the National Parks, and the country slightly to the east of these, but there is quite good fishing to be had in the other sections of the Province, thanks in great measure once again to the Provincial Government. There are two new quarries for the angler—the Dolly Varden (*salvelinus malmo*) and the cut-throat trout (*salmo mykiss*) as well as many familiar ones, and the Rocky Mountain whitefish is another native—his name alone being a reminder of the vast mountain masses that lie to the north and west, and of themselves ensure the quality of the water that makes for good game fishing.

The Dolly Varden is quite unmistakable in colour, being greenish-grey on the back and white on the belly with large pinkish spots. She is a good sportswoman, dogged and difficult to tire, and in some lakes runs up to 20 lbs. in weight, though average catches lie between 11 and 16 lbs. Bait and spinner generally draw her, though the smaller ones will usually rise to the fly. The cut-throat may sound less elegant—he very much resembles the rainbow in type—but he can give as good sport as Dolly Varden, and is thought by many to be the gamer fish. He is heavily spotted, and carries round the lower jaw the bright red crescent-shaped mark that is his distinguishing feature. He is a beautiful table fish and a treat to play, combining the quickness of the rainbow with the persistence of the Dolly Varden. Specimens run up to 15 lbs. in weight, and respond to the usual trout-angling tactics.

Both these fish are well distributed and you will generally find them in the same waters, but Dolly Varden fishing is particularly good in Jasper National Park—the Athabasca, Jack and Maligne Rivers, and the waters west of Edmonton; Brule is an excellent centre, and she is plentiful in Belly River and St. Mary, Highwood and Old Man Rivers, and west of Calgary. The cut-throat follows her closely, but he is not often found north of Edmonton (though you will find him east of Calgary and west of Nanton in Willow Creek)—it is the Arctic grayling that comes into its own up north, particularly



PLATE 23

TARPON (*TARPON ATLANTICUS*)

FLORIDA

in the waters below the junction of the Parsnip and Findlay Rivers. It abounds in most of the tributary streams of Lesser Slave Lake and River, and particularly in the Whitecourt district. The rainbow trout is fairly common in grayling waters and in company with the Dolly Varden in Highwood and Bow Rivers and west of Edmonton, but the best fellows come from Jasper National Park. This is excellent trout country, great care having been taken to stock its once deserted waters, and not only is the Eastern Canada speckled trout settling down well here (catches in the Medicine-Maligne system averaging 7-8 lbs.), but Lakes Edith and Annette have furnished some remarkable specimens of brown trout—one taken from Lake Edith reaching 12 lbs. 8 ozs. and measuring 33 ins. in length—the usual “good” catch of browns runs at about 5 lbs.

The Great Lake trout is a native of this Province and is found in good numbers in Waterton Lakes and Banff National Parks. Lake Minnewanka has yielded many 50-pounders, as has Cold Lake (north-east of Edmonton). This is excellent toge country, other favourite waters being Frog, Baptiste, Floating Stone, Fork, Pinehurst, Beaver and Amis Lakes, Lake St. Vincent and Lac la Biche. It is also good for pike, and the faithful pickerel. Both like the waters of the foothills country, and in the Chin Lakes east of Lethbridge the pike fishing is particularly good.

Last, but not least, comes the ouananiche again, who has been experimentally introduced into some of the waters of Jasper National Park. I have unfortunately no records of actual catches or distribution, but I think one can assume that he will give as good an account of himself here as he does in his native waters under the skies of Eastern Canada. This is in a sense the last outpost of his empire, for he goes no farther west than this—over the border lies British Columbia and the Pacific seaboard, the realm of the Tyee and the Cohoe, fighters both.

British Columbia

The Province of British Columbia has some 7,000 miles of coastline and its mainland is traversed by four great mountain ranges. To the angler these facts speak for themselves. The wild forest country of the north and north-west is famous for big-game hunting—grizzly, elk, caribou and mountain sheep roam the high passes, and from the snows above the timberline a tremendous weight of water plunges down to swell the frothing rivers. There is real virgin water here for the enterprising angler, but there is also a wealth of good fishing along the coast and the more accessible waterways, and though there is no tuna off this western bulwark of Canada, and no muskellunge in the inland rivers, there are three new varieties of fish to gladden the heart of the most critical: the Pacific salmon, and the Steelhead and the Kamloops, two magnificent trout. There is also the usual wide range of now familiar game fish, including the true grayling, and (as might be expected) every type of location from the canoe-and-campfire outfit to the sophistication of a holiday resort. Once again I would emphasise the maxim, “Find out about everything before you start, from the man on the spot.”

The Spring or Tyee salmon (*oncorhynchus tshawytscha*) (also known as the Chinook or the Quinnet) is the big fish of this Province, and a fine fish he is, running sometimes up to 80 lbs. in weight, though the amateur is generally very well satisfied with a 40-pounder. The Cohoe (*oncorhynchus kisutch*), who inhabits the same waters, is considerably smaller, not often exceeding 15 lbs. Both are splendid fighters, leaping and twisting on the surface of the water and boring at tremendous speed for the bottom when hooked, and in recent times light tackle has become extremely popular for both varieties. There

is one more type—the humpbacked salmon (*oncorhynchus gorbuscha*) that is found occasionally in Tyee waters, particularly in the Campbell River, and though catches are generally small (8–10 lbs.) they can give as good sport as many bigger fish before they come to the gaff.

For the angler with a taste for the unusual there are two other types of salmon to be found—one in the waters of Lake Redfern, far up in the Peace River country, where an unnamed variety running up to 50 lbs. in weight has been taken, and a second in the Telegraph Creek district of the North-west, reputed by some to be the ouananiche. I feel that this assumption is open to question, since the ouananiche is indigenous only in the extreme east of the Dominion, and I am not aware of any official steps having been taken to introduce it to these waters. The fish in question may be another “unnamed variety” like that in Lake Redfern, but whatever its label it certainly possesses the best characteristics of its family—gameness and cunning, and is well worth the pursuit.

There are reports of a “salmon-type fish” in the Stikine and Tarko Rivers in this same district, though it is a bad taker on the fly, and on the whole the angler can do far worse than stick to the Tyee and the Cohoe, remembering that a salmon on the hook . . . The Tyee is well distributed along the coast of the mainland and around Vancouver Island, and is of course fished commercially—I believe that radar devices are now employed to assist the fishing fleet during the early runs. He is particularly at home in the Campbell River, Vancouver Island. This is a happy hunting-ground for the fisherman, and I among others am looking forward to reading Mr R. Haig-Brown’s newest book about it—*A River Never Sleeps* (Collins, London, 1948). Campbell River is the headquarters of the well-known Tyee Club, who have laid down rules and regulations for the proper taking of these fish in the waters that come within their jurisdiction, and whose Club Button is a coveted distinction, since it is conferred only on those competing amateurs who have taken on light tackle a Tyee of 30 lbs. or more. The Tyee lies in the Campbell River in comparatively shallow water. Most are ocean-type 5-year-olds, but a proportion are 6-year-olds which have spent the first year of life in fresh water and are consequently known as “stream-type” fish. This doubtless accounts for the satisfactory weights of the Campbell River catches, since fish that have spent less than four years at sea rarely tip the scales at more than 30 lbs. As a matter of interest I will quote the following figures from Tyee Club records up to the outbreak of war—all, mark you, taken on light tackle:—

Agnew, John C.	..	..	1935	..	..	64 lbs.
Say, H.	..	..	1939	..	..	62½ lbs.

and for lady-anglers:—

Cobb, Mrs. R. L.	..	..	1931	..	..	57½ lbs.
Butler, Mrs. W. C.	..	..	1934	..	..	60½ lbs.

Trolling seems to be the most popular method, and the season runs from June to early September, though earlier and later catches have been made.

You will find the Tyee and the Cohoe (these latter are generally 3-year-olds) at many points on Vancouver Island—Cowichan Bay, Comox, Saanich Arm and the mouth of Campbell River being the most popular locations, and all along the coast of the mainland around Vancouver, Gibson Landing, Bowen and Horseshoe Bay. In the extreme north they give excellent sport in the coastal waters of the Queen Charlotte Islands, particularly at the northern end of Graham Island. Most of this water is readily

accessible, with grilse and bass to be found as well, and a fine sea-trout in most of the tidal rivers. The Capilano and other Burrard inlet rivers, Fraser, Serpentine, Coquillard and Pitt in the Lower Mainland district are all good salmon waters—for the Cohoe is generally found with the Tyee, giving of his best round about August, and there is another grand sporting fish to be found in their company (and generally a little earlier in the year)—the British Columbia steelhead.

The steelhead is in a sense the most exclusive fish in Canada, for he is found nowhere else at all in the Dominion. He strongly resembles the Atlantic salmon in shape and habits, being a beautiful silver fellow with a touch of crimson on the flanks as spawning approaches. He runs in weight from 8–20 lbs. and is really a sea-trout, since he is not found in the rivers except roughly from January to June (he spawns as a rule in March and April). There are few fish to equal the steelhead once you have struck into him. He knows all the tricks that the sea and the tideways can teach him and is immensely strong and resourceful, a worthy occupier of your time until the Tyee come up. Vancouver Island gives excellent steelhead fishing, particularly on the Cowichan River in the colder months, when they will rise to the fly, and the Alberni, Sooke and Nanaimo Rivers later in the season, and while (as I have said) he is found in the majority of the salmon streams emptying along this northern coast, particularly fine specimens have been taken in the rich Queen Charlotte waters.

The "Interior" steelhead is more commonly known as the Kamloops trout and is found in the inland lakes of the Province. He closely resembles the steelhead proper but has the habits of the rainbow and is strictly a fresh-water fish, spawning as a rule in June. The Kamloops is fairly widely distributed; for example, you will find him in Seton Lake (near Lilloet), Coquihilla and the Fraser River country in the Lower Mainland, Shuswap and Okanagan Lakes and Kamloops Lake itself in the Okanagan district, and many of the lakes of Kootenay (including Christine and Windermere)—sometimes in the lakes of Yoho National Park. It will be noted that this fish is taken in the lakes, not the rivers. Unlike the rainbow, he does not ascend the streams until ready to spawn, and at that season no lure will tempt him.

The gallant rainbow trout is generally found and can run up to an immense size, and once again he is accompanied as a rule by the Dolly Varden and the cut-throat. These three are found together in most of the inland waters of Vancouver Island and the Lower Mainland, and again in the Chilliwack district, east of Vancouver. Magnificent specimens of cut-throat have been taken in Clowhoon Lakes at the head of Salmon Arm in Seechelt Inlet. Hope and Ashcroft are excellent centres. There are few inland waters in Okanagan where these varieties are not found, and the same may be said of Kootenay, where fine specimens of the eastern speckled trout are sometimes taken, particularly Lake O'Hara and Cataract Creek. So far as the northern district is concerned, much of this territory is largely undeveloped, but it can certainly be said that wherever fishable water has been opened up good and varied trout fishing can be had. The Great Lake trout is also plentiful in this region, Revelstoke and Clearwater are good centres, also Clinton, and here the angler will find such waters as the Columbia, Fraser and Chilcotin Rivers systems, and Canim, Horsefly and Nazko Lakes. Forty miles north of Vanderhoof is the famous "Stuart-Trembleur" lake region which offers within its boundaries an almost unlimited variety of good trout fishing from July to September, and for really big fish the trout angler will make for Fort St. James. A 15-pounder is the average here, and once, in 1937, a 22-pounder was caught in Stuart Lake.

For pike and pickerel, they take second place to the trout in this Province, but good specimens may be taken in Lake Teslin, and Deane Lake in the wild country round Telegraph Creek. The fact is that a list of the good fishing locations in British Columbia would read like an extract from a gazetteer, and added to it all is a wealth of scenery to delight any man with the time to look up from his task. It is country like this that makes one realise in some measure how much the angler owes to those enthusiasts who mapped the trails, planned the portages and charted the pools and channels. All this has taken time, and the process will go on, for in every province, as we have seen, there is room for the hunter and the fisherman to stake new claims. It is only in one sense that British Columbia is our journey's end.

It is, however, the end of the settled country, apart from the comparatively undeveloped regions of the north, including the Yukon and North-west Territories, but though the Yukon is known as mining country, its waters are well stocked with trout—lake trout up to 60 lbs., Dolly Varden, Arctic grayling, whitefish, pike and panfish, and the Tyee himself is found in the coastal waters. Whitehorse, Dawson, Kluane Lake, Fort Selkirk and Carcross are good starting-points, and the angler has the added pleasure of knowing that not only is he going to good water, but to water where he may be the first to cast a fly. The same applies to Mackenzie Territory and Keewatin, though there is less variety of sport—lake trout, whitefish, pike and grayling, and last—but not least—a bonny salmon-trout in the north of Hudson Bay.

Far to the north and east lie thousands of miles of untamed land where in all probability the white man has never yet set his foot. The fisherman will get there one day, that is a certainty, but for the present he may be well content. Tuna or musky, Atlantic salmon or Tyee, dogged pike or leaping rainbow, the thrill of a taut line—there is much to look back upon when a long sweet trip is over and the tackle put away for the last time, and mingled with it all (though at the time he may scarcely have known it) the sound of water, the scent of wood smoke, and the salty breezes of the tide-ways.

We have a goodly heritage, we fishermen, and if in the telling of our adventures our trophies gain a little in size, or our efforts wax heroic in intensity, it is not perhaps surprising. Some may doubt our travellers' tales, but I think the Recording Angel will forgive us. He knows that for all our human folly we speak for the glory of Canada, the mother of snows and cool, proud water, who has given so richly to her humbler sons, the angling fraternity.

SMALLER MARINE GAME FISH OF THE EAST COAST

(NORTH OF CAPE HATTERAS)

By OLLIE RODMAN



FROM Cape Hatteras, North Carolina, U.S.A., to Nova Scotia, off the east coast of the Dominion of Canada, is a long way—a long and fascinating way for the salt water angler seeking fun, food and relaxation. The United States Coast and Geodetic Survey tell us that it is approximately 1,650 miles from Cape Hatteras to St. Paul Island, the northern tip of Nova Scotia; but that mileage does not include all the little inlets, the many extra riparian miles on tidal riverways nor the innumerable watery nooks and crannies which often produce some of our most excellent action with the great variety of game fishes which swim within the southern and northern limits named above.

Our privilege is to tell you about the smaller game fish which inhabit, or migrate through these waters. We approach the word “smaller” with some discretion, as it immediately connotes comparison. Smaller than what? Our first thought was of the world’s record tuna which came from this area (Ipswich Bay, Massachusetts, to be exact, and caught by a tyro fisherman on his first trip out! !); a great fish which tipped the scales down to 927 lbs. So we have eliminated the pelagic tunas, sharks and broadbill swordfish which will be fully described by abler authors in another part of this book. In fact, our “smaller” fish will rarely get over the poundage of 50 or 60—but nonetheless they are worthy angling antagonists, especially on light tackle. In fact, we will mention fish which are so small that it will take five or more big ones to add up to a pound; but what these may lack in fighting qualities they more than make up for in delicacy at the table. Speaking of the littler fish, remind us to tell you—more details later—about the frost fish which you can catch with a garden rake, a burlap bag, a flashlight, aided and abetted by your ability to withstand the rigours of the keen-edged, frost-bitten New England nights at about the time of Thanksgiving. Don’t sneer at fishing with a garden rake—you can use a long-handled dip net if you wish—as in the right company, fortified with an occasional nip of potent liquid refreshment, this is a sport which is not only unique but real fun, even if you don’t bag a single fish!

Do you want to catch a 10-lb. striper on a 7-oz. fly rod? Did you ever see one of these fellows rush a fly; have you heard them roll and slap as they fed just about dusk; have you felt that first wrist-shaking jolt when they feel the steel? Did you know that you can smell them? Or would you rather tangle with a 50-pounder in the roaring surf when the thundering combers roll so high that they threaten to engulf both you and

the beach or rock where you fearfully stand as they rush landwards? Or perhaps you like the soul-filling peace and quiet of a tidal marsh at sunset with the shrill cries of the migrant shore birds constantly in your ears; with no other sounds except those of the wild wastes and its feathered and finned inhabitants; to sit there quietly in your boat, that inimitable odour of salt marsh filling your nostrils, waiting for the rushing strike of a big tide-running weakfish. That *is* a treat!

Indeed, there are innumerable fishing thrills awaiting you as a visitor to this great stretch of shoreline. Surf casting for stripers, bluefish, channel bass, weaks or fluke. Trolling for pollock, bonito, mackerel, weakfish; bottom fishing for tautog, cunners, codfish, flatfish, scup, sea bass (not to be confused with either channel or striped bass) or tommycod. Whether you cast energetically from the white sandy beach pounded by powerful surf; whether you lean languidly over the rail of a bridge spanning a tidal river or inlet; or whether you loll luxuriously aboard an offshore fishing cruiser, or humbly and hopefully hang a handline over the side of your 15-ft. dory, you'll find fishing fun. And you'll find company if you want it, or solitude if you prefer. It is all here and you can custom-fit it to your mood or fancy. Whether your pocketbook bulges with money or is as flat as the proverbial American pancake, you can have your fill of angling action. If there is one over-all characteristic of this section of the American shoreline that appeals to anglers from near or far, it is the accessibility of the fishing grounds. Even from the heart of our biggest cities you can reach satisfactory fishing almost in a matter of minutes.

And another thing. Even though some of the greatest cities of the United States rise up into the sky along the edge of this great fishing area, in the background there are endless places where you can walk the beach or skirt the shore for 30 miles at a time without seeing more than an occasional summer cottage or fisherman's shack. This may seem amazing or even impossible, especially between New York and Maine, one of the most densely populated areas in the United States. But true it is—and the fish are there, waiting for your line and lure.

The Striped Bass

Of the many species which you can catch between Hatteras and Nova Scotia, probably the most prized gamester is the striped bass. Immediately we can hear cries from those who contend that the channel bass, the bluefish or the weakfish is the most popular—and it may be so. But the striper has a wider range north—within the (geographical) limits with which we are concerned—and south than any of those mentioned above. In fact, at various seasons of the year, they can be found—not always caught, of course—from Chesapeake Bay, their main spawning and wintering grounds, all the way to Nova Scotia, their northern migratorial limit. Of the smaller game fish we think he's king; and thus, as is fitting with royalty, we first present that tackle-smasher of the surf, that tireless runner of the tidal rivers, that schooling migrant of the bays and inlets, the striped bass, *Roccus saxatilis*, formerly carrying the scientific name of *Roccus lineatus*. If you know him already, we feel sure he has your respect; if you have yet to meet him, to match your wits and skill with rod and reel against his uncertain moods, whimsies and long rod-jerking runs, you have one of the best thrills of your fishing lifetime ahead of you.

Much more—perhaps too much, perhaps not—has been written of the squaretail or brook trout (*Salvelinus fontinalis*) than of the striped bass; but that we lay to the fact that until the last twenty years, salt water game fish did not somehow enjoy their deserved

interest from American anglers. Surely the trout's greater popularity in literature is not due to any of his qualities which the striper does not possess, for to our way of thinking, the striper is a salt water counterpart of, if not an improvement on, the brook trout. Both fish have the same physical features of heavy shoulders and powerful square tail; both love fast, rough water, an environment which imparts the alertness, physical stamina, well-timed and trained muscles and aggressiveness which are fundamental requirements of great fighters whether human or piscatorial. But if you are a trout fisherman used to taking even the largest of the species, watch out; for if you seek the striper with the same light fly rod tackle, and if you should happen to hit into a 10- or 12-pounder in a swift tidal current, your trout tackle will not be sufficient. That is, not unless you have thoughtfully wound on at least 70 or more yards of extra backing (six-thread cuttyhunk or equal test nylon) on your regular 30 yds. of fly line—and even then you'll need all the tricks of the trade to bring the big line-sided silvery fish to bank or boat. But in my enthusiasm, I'm getting ahead of my story.

As you may have already gathered from his anadromous habits, the striper, whether in the open ocean or the bays and inlets, is an inshore, shallow water fish. In fact, we have seen them streak up out of the deep bay channels and chase bait over the bars and flats where there was hardly enough water to cover their separate, needle-like, sharp-spined dorsal fins. The water really flies when a school of hungry, voracious stripers looking the part complete with their slightly undershot jaws shoot through the water like so many fast torpedoes. In the heaviest surf, we have seen them cut through the middle of a breaking wave, feed with abandon and apparent relish in the white water formed by a series of breaking combers in which a man could not stand up or swim. We've had them take our lure at the very shelf of the beach, barely a yard from the edge of the dry sand. Averaging in weight from 1 to 25 lbs., not uncommon in the 25 to 50 lb. class, and occasionally tipping the scales down to 65 or 70 lbs., there is still a chance for you to establish a new world's record: the old record is 73 lbs. on rod and reel.

In fact, there are handline or net records of stripers weighing over 100 lbs. It is not beyond the realm of possibility that there are still some smart old stripers swimming in the edge of this great stretch of sea which have evaded both the commercial and sport fishermen long enough to have attained such great poundage. As is true of many phases of fishing, not knowing the size of the fish which might take your next cast is an important part of the mental suspense. In striper fishing this is especially true: on one cast you might hit a 4- or 5-pounder; on the next, a lunker weighing ten times as much. So it pays to always have your tackle in ship-shape condition. Take no chances with old lines, rusty leaders or hooks. Just a bit of carelessness at the wrong moment can cost you prettily in disappointment at a fish lost because of improper care of your equipment.

If you fish for the striped bass south of the New York area you will find that he is commonly called a rockfish, or "rock." Or if you happen to beach a big old surf runner, you may hear a native refer to the fish as a "squidhound" or "greenhead": both names are appropriate, as the striper favours fresh squid as a regular diet, and the larger ones have a deep greenish tinge to their head and back. The name of "striped," of course, evolves from the seven or eight dark lateral stripes which run from in back of the gill covers to the very end of the silvery body.

Speaking of foods, the striper's diet is quite all-inclusive. In the many years that we have followed the practice of opening their stomachs we have found the following: small eels, whiting up to 1½ lbs., small mackerel, small and large herring, little harbour

shrimp barely an inch long, sea worms, sand eels, crabs, shellfish and a variety of smaller fish too numerous to mention here. So it is not strange that, as you will note later on, the angler has the choice of a wide selection of lures both natural and artificial.

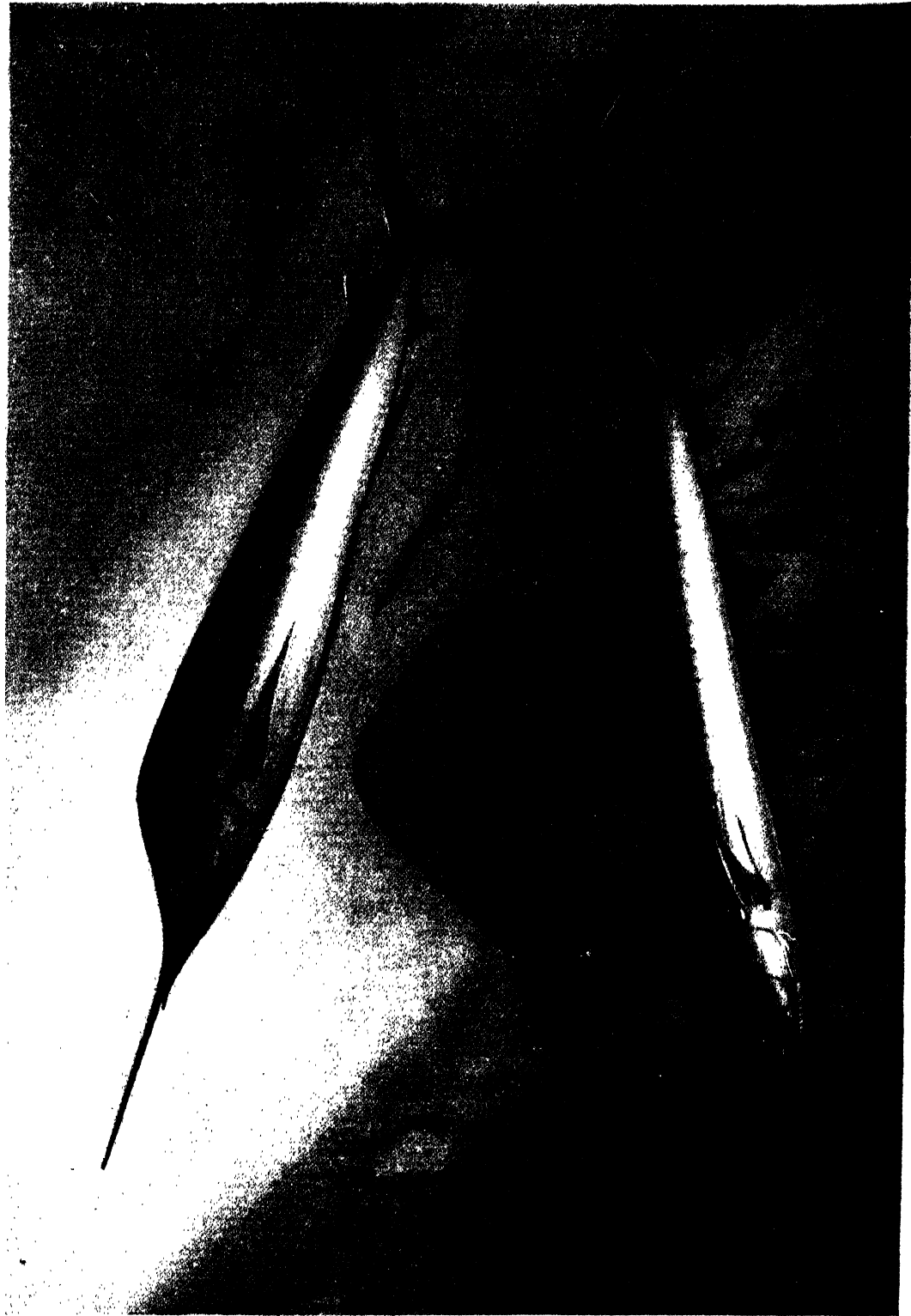
Now I think it's about time that we really went fishing. Shall we take a striper by surf casting, trolling, fly fishing or on one of those top-water popping, gurgling lures which really drive the linesides mad? Knowing that there are those who prefer each method, it's hard to choose without starting an argument. But let's go back a few years and we'll find that the majority of stripers were taken from the surf with the long rod. So with deference to age, and a desire to put first things first, let's take a glance at a typical surf casting scene.

Whether you stand on the end of a long pier off the Jersey coast, comfortably close to one of their fine salt water fishing club houses, or whether you stand alone, miles from the nearest town, on a towering rock, with the savage surf breaking around your feet (or perhaps you may be on one of those fascinating, sun-soaked beaches of Long Island or Cape Cod) as far as your expectancy goes, it does not matter where you are. Out there, in front of you, within easy casting distance—so don't try to reach Spain on the first, or second cast—are some striped bass. They may weigh 3 lbs.; they may weigh 30. That's part of the fun of it. But now, how about our tackle?

Surf Casting Tackle

For surf casting (and this goes for channel bass, bluefish, weakfish or other fish which you may—or may not, if they won't bite, even though they may be lying there in droves—take by surf casting along the North Atlantic shoreline) you'll want what is called logically enough a surf casting outfit. This is a specialised bit of equipment which to the dry fly man will look like a great long club sufficiently rugged to slay an ox. The butt of the rod is at least 30 ins. long and usually over 1 in. in diameter. Some butts, called "club," are the same diameter throughout their entire length; others, called "spring," are about 1 in. in diameter at each end, tapering to perhaps $\frac{1}{2}$ in. in the middle. If you grasped each end of either one and tried to bend it over your knee, you'd have to be a strong man to do it—and have a strong knee, too. The reel seat, usually built over the outside of the female ferrule, should be made of best materials and have a screw lock. The tip of the rod will vary from 6 to 7 ft. or even more. If you're of short stature, you'll want the shorter rod unless you are blessed with better than average strength in your arms, back and shoulders, all three of which are used in making the cast. Made of bamboo (split tonkin cane is best), steel or lemonwood—and we greatly prefer the bamboo or steel—the tip alone will weigh from 9 to 16 ozs. Equipped with at least two running guides this tip and butt when seated together give you a really powerful casting instrument that will handle 5, 6 or even 7 ozs. of lure or bait with ease. The steel surf tips have four guides as a rule and they help prevent your line bellying out.

Your surf reel is a rugged but precision item. Capable of holding at least 200 yds. of 12-thread cuttyhunk or the equivalent length in nylon of equal test, equipped with a free spool to disengage the handle for the cast, and also having a star drag, it's a standing tribute in itself to the science of reel manufacturing. Ranging in price from less than 10 dollars up to over 50, surf reels are available for any sized pocketbook. But remember, as in any other item of standard make, you get exactly what you pay for. If you are an occasional surf caster, the cheaper reel will do the job. But if you are an enthusiast, then you want to spend at least 10 dollars, and preferably not less than 15. Higher-



priced reels do last longer and run more smoothly—and the function of your reel in surf casting is all-important. While we think of it, be sure to spool your line evenly across the reel spool when retrieving a cast. Your thumb and index finger have to act as a level-wind, as surf reels have not yet been equipped with this device so common on fresh water bait casting reels. The reason for this is obvious: surf fishing is apt to mean sand and the level wind device has its gears in the open where sand could quickly collect to cause trouble. Since your reel takes a brutal beating with repeated casting, handling heavy lures and playing sizeable fish, keep it well oiled and cleaned. The better reels are not apt to rust, but even the best requires care like any other mechanical instrument in order to enable it to give the long years of service which have been built into it by the manufacturer.

We have already mentioned a 12-thread line, referring to the linen or cuttyhank which tests 3 lbs. to the thread or a total of 36 lbs. before it reaches the breaking point. This is the time-honoured standard type of surf casting line, but the new nylon ones are gaining fast in popularity. Thirty-six pounds test is plenty strong enough, as with your tip up and the resiliency of the bamboo or steel to help take up the shock of a sudden hard strike or run, it would be a rare instance when anywhere near this amount of pressure would come on the line. In fact, you'll find that a 6- or 9- thread line will cast much better, giving you more yardage for the same amount of casting effort. The lighter lines spool more evenly, cause less friction as they shoot through the guides, and offer less surface for air resistance. The character of the water you are fishing is important in your choice of a heavy or a light line: if you are casting in surf abounding in sharp reefs or barnacle-covered rocks, your heavier line is safer; if your stretch of water is rockless and if you need every yard you can get to reach an offshore bar or rip where the fish are feeding, then the lighter line is more satisfactory. Just a word more about lines before we go on to the various baits and lures for surf fishing. Watch for frayed spots; and always test the end 4 or 5 ft. of your line each time you set up your tackle. The end footage takes a real punishment because it is this section of your line which is most apt to scrape the bottom, slide over rocks and generally get more wear and tear.

Between line and leader is a swivel and perhaps a leather thong in order to help take up the shock of sudden strikes as well as to help prevent chafing where the line is tied. The leader itself should not be over 3 ft. and of stainless steel wire, even the thinnest of which will give plenty of strength. Watch this leader for kinks. Wire is cheap and it's better to throw away a kinked or rust-spotted leader rather than take a chance on losing a fish.

Lures and Baits

The lures which will take stripers, channel bass, weakfish and bluefish are almost without number. Always seeking something better, fishermen have added greatly in the last few years—especially since the war—to the variety of artificial baits. The old standby for casting and retrieving is the metal squid, usually improved when tipped with a 2-in., narrow strip of pork rind or wick. These lures cast beautifully, especially the heavier ones weighing 4 or 5 ozs. Such well-known types as the Montauk, the Johnston, bent-sand eel, butterfish, all are good fish-takers. It may be our imagination, but we firmly believe that these lures are especially effective when the retrieve starts the very second that they hit the water. This means that when your squid is still in the air, and several feet above the surface, you throw the free spool lever back into gear and start

the retrieve. If you wait until the lure hits the water, there is an instant or two when the squid settles in the water like the dead thing that it is—and dead metal is not interesting to game fish as a rule.

A fast retrieve seems to take more stripers with the metal squids, but there is no hard and fast rule in fishing methods, so it is well to try slow, medium and fast retrieves until you seem to have hit the tempo that the fish like. In fact, we have found it pays to change the pace: start fast, slow down for a few turns of the reel handle, then step up the speed again. Also, an occasional twitch of the rod tip helps to give extra liveliness to the metal lures. Before we leave the metal squids, may we remind you that you'll take more stripers and other surf fish if you tip the hook with a narrow strip of pork rind. You can purchase these in most any tackle shop; and our preference is for the ones with a hook built into the pork rind, as this tail-hook will occasionally catch a short striking fish which would otherwise have escaped. Another good tail-piece for your metal squid is the wick-tail, also with hook built in. It is procurable almost anywhere in this region. In fact, a strip of your handkerchief, $\frac{1}{2}$ in. wide and 3 ins. long, will sometimes help. These attachments, small as they are, do cut down on the length of your cast because of the extra wind resistance, but it isn't always distance that counts.

One of the most exciting forms of surf fishing for stripers—and you can do it in the bays, inlets and tidal rivers as well—is taking them on a top-water plug. Special salt water plugs for this very special sport are obtainable from most sporting goods stores; just ask for such names as Tiderunner, Sylvester, Atom, Walkie-Talkie, to name a few of the more famous ones. If the metal squids or the live baits fail to produce stripers, and you know that they're there, try these top-water turmoil-stirrers. We've seen many a day when the fast erratic retrieve of these plugs would bring those bass out of their lethargy and on to the hook!

To leave the artificial lures for a moment, if you want one of the most reliable baits for stripers—yes, and for almost any of the inshore inhabitants of the surf—don't overlook the squid. This octopus-like creature can be used whole or in cut strips—and some surf casters will tell you to use the head only. The latter part is probably such a good bass killer because the tentacles will weave and wave in the motion of the water and thus attract attention of passing fish which might overlook a motionless cut piece or strip of the body. If you want big bass, use the whole squid. For fishing the sandy surf spots, you'll use the conventional pyramid sinker and fish-finder combination most suitable. If you're working around the rocks and ledges, a whole squid without a sinker will be heavy enough to cast, and you can let it wash around with the waves. Bluefish, weaks, channel bass and stripers will all take this bait about as readily as any we know. In fact, our first bluefish, a 9-pounder, was taken on a whole squid fished right on the bottom—an exception, of course.

Other live or real baits should be mentioned before we leave the surf fish. Rating high is the seaworm, obtainable from hundreds of tackle shops or bait stores all along the North Atlantic seaboard. This unattractive looking worm will take almost any of the salt water game fish: stripers, channel bass, tautog, flounders, scup and weakfish. Still other good baits are chub, crabs, with accent on the sheddar or soft-shelled variety, fiddler crabs—and if you're after big stripers don't overlook the herring. It's a good idea to chat with the local bait dealer as to what is taking the most fish in his locality at the time; fish are temperamental, changing their feeding habits not only seasonally, but often from day to day.

While pretty much the same tackle as we have described can be used successfully for stripers, channel bass, bluefish and weakfish, there is, of course, a change of end tackle when you switch from artificial lures (which you cast and retrieve) to bait. If the bottom is sandy, you'll find the old standby rig of fish-finder and pyramid sinker best. However, if you are fishing the inshore rocks for tautog or blackfish, you'll want a sinker which is round or shaped like half an egg so it will not catch readily in the underwater ledges. For this latter type of fishing we also prefer to have the sinker on the end of the line, with two hooks tied so that the baits are about 3 or 4 ins. above the sinker. Under this arrangement the fish does not have to move the sinker before you feel his bite.

While it would be impossible to point out all the best spots between Cape Hatteras and Nova Scotia for surf fishing, we can, however, pretty well divide up the coastline as to the surf species you'll find. From Hatteras north to southern Jersey is best for channel bass with plenty of weakfish and stripers coming into the picture from Chesapeake Bay north to Buzzards Bay, Massachusetts. Bluefish are mainly from Hatteras to Cape Cod, seldom north. Then from southern Connecticut you'll find the tautog—also commonly known as blackfish—within easy casting distance off shore; their northern limit seems to be the vicinity of Boston. Your regular surf tackle, the double hook rig (Virginia, size 4 hooks), baited with a piece of seaworm, cut crab, fiddler, or even the lowly clam snout will do the trick. The stripers are found all the way to Nova Scotia with many chances for pioneering new fishing grounds.

Trolling

But perhaps you prefer to troll or still-fish from a boat. Trolling, whether with outboard or oar-power (you'll need the former in many of the tidal currents) in the bays, rivers and harbours or from the thousands of inboard charter boats to be found in this area, will take most of the game species already mentioned in surf fishing. Stripers will take such trolled lures as smooth-running spinners baited with seaworms, feather jigs, eelskin rigs, metal squids, wooden plugs, barracudas, or big streamer flies with or without small spinners. Blues hit savagely at trolled eelskins, metal squid or feathers. Mackerel will take flies and almost any small spinner. Weakfish are taken mostly by anchoring your boat in a tideway, chumming with shrimp, and fishing with light tackle (down to trout rods) with the hook baited with shrimp also. Pollock, ranging from 2 to 30 lbs., work in along the coast from New York to Maine in May and June and at times you'll find acres of them surfacing and ready to hit the first moving thing that you may offer them: feather jigs, metal squids, wooden plugs or streamer flies.

If you had the time, an able 40-ft. boat with plenty of power and shallow draft, you could arrange your trolling—and surf fishing—season pretty well, starting at Cape Hatteras, N.C., as follows: About the first week in April you'd look for blues. If you stayed a week or so, you'd hit into the big channel bass also. Moving north to the Chesapeake in May you'd hit into stripers, channel bass and the weakfish. From then on you'd have to fish northwards fast to keep up with the stripers which sometimes get into the lower New England waters in May also. But the bluefish do not move north so swiftly; the best New England fishing is in late July and from then into early October. To retrace our steps and catch some weakfish in famed Peconic Bay, New York, we'd plan on June; and about that time, the school tuna start hitting off the Jersey coast. If we had to concentrate our fishing time into a couple of weeks almost anywhere along the great stretch of fishing water which we are trying to cover in so few words, we'd pick

any time from July to October, when almost all the species are in their favourite hotspots.

For trolling tackle, we can fairly easily hit on a standard equipment. A 6-ft. tip, bamboo or hollow steel, weighing 6 to 9 ozs., will handle about any fish you'll take trolling in this area. Possible exception is the school tuna; the 12-oz. tip would be preferable here. Your reel will be of known manufacture with free spool, star drag, and a capacity of 250 to 300 yds. of 12-thread line, either cuttyhunk or the equivalent strength in nylon. Swivels, stainless wire leaders, hooks from 5/0 to 10/0, a knife, pliers, with wire cutters, and sunglasses just about complete your outfit. Many charter boats furnish tackle but just as many do not, so it's safer to have your own outfit—and it's more fun to fish with familiar tackle anyway.

The chances are that if you are trolling in these waters you will hire a charter boat manned by a captain and crew who know their business. But as prices and practices vary along the coast, here is a tip or two: First, make sure before you engage your man what his charge is. Also make sure that you have it settled as to who owns the fish after they are caught. Many a good day has been ruined when, arriving back at the dock, the sport fishing party is told by the captain that the fish belong to the boat. This is a matter of great dispute, so it is well to have an understanding before you start out.

If you are going to be your own boatman and guide, here are a few more suggestions: Never troll through a school of surfacing fish; troll around them, steering so that while the boat skirts the school, your lure will pass through it, or along its outer edge. Many a time we've seen good fishing ruined by inexperienced boatmen, who drive right through fish, putting them down for good. Also, if you are using a spinning lure, be sure that your swivels are working; if they are not you'll untwist or kink your line and ruin it in a very short time. Be careful, too, about fishing too close to another boat; never cut across their stern and trolling lines.

If you don't hit fish on top, slow down and try deeper. For instance, there are many days when a fast trolled eelskin will take stripers at the surface: but there are other days when you'll want to troll a spinner-and-worm combination slowly, just fast enough to keep it off the bottom, to get the best catch. School tuna like a fast trolled feather, often taking it right in the wake of the boat; mackerel and pollock will usually prefer fast-moving lures. And when you hook into a fish, either stop the boat or at least slow it down until the fish has been boated. For this operation you'll want a landing net for small fish, a gaff for the larger ones.

In trolling, you'll find that tuna, pollock and mackerel are usually found offshore; striped bass inshore; with bluefish varying and with the weakfish both in the surf and well up into the harbours. It is pretty hard to lay down general rules as to where the fish will be found, your best bet being to get the information from the local fishermen or charter boatmen.

As in other forms of fishing, keep your rod tip about half way between the horizontal and the perpendicular both when trolling and playing a fish. This makes the rod do the work; and it gives you the advantage of having the resiliency of the rod take up the strain or slack. Pointing the tip of a rod away from a fish will probably break the tip. Remember that half-way-mark position.

Other Methods

In addition to the more popular fishing methods of surf casting and trolling, our part of this story would not be complete without mentioning a few other phases of fishing

in this area. For instance, you can have great fun with your regular salmon tackle if you will fish the fast-running tidal inlets or rivers for stripers. Use a white, blue and white, or green and white streamer fly tied on a long shanked 2/0 or 4/0 hook. Cast across the current, let the fly sink a few feet, then slowly retrieve. This method just at dark, after dark, or in the early hours of dawn can tie you into stripers. Often you'll hear or see them slapping around on top after bait; and when one of them hits your fly, you're in for some real sport. Be sure to have at least 75 yds. of backing on your regular fly line.

Your usual trout tackle can give you some magnificent sport with schooling mackerel. Small streamer trout flies cast into the mackerel schools will sometimes enable you to take this blue, bullet-like speedster as long as your wrist can stand the strain.

Or, if you want something different, spend a day offshore handlining for codfish. You'll want strong arms and perhaps a strong stomach; but if the big cod, 20 lbs. and more, are biting, you'll have fun.

In fact, to tell you even sketchily about all the different forms of angling that you can enjoy in this great area would fill a volume of hundreds of pages. So we have tried to hit just the highlights on where to go, tackle and methods. In conclusion, before we are tempted to tell you some yarns about big ones we have lost, may we just wish you the pleasure of a fishing trip somewhere between the fish-filled points of Hatteras, North Carolina, U.S.A., and the Royal Province of Nova Scotia. Not only will you find good fishing from April to November, but you'll find some grand scenery, a wonderful climate (changeable though it may be) and a hospitality which is unchangeable. May your tackle hold.

How to Get There

One of the attractive things about salt water fishing along the north Atlantic is that you do not need a licence. However, you will want to check the State laws, as they vary as to minimum length limits, etc. You can write ahead to the State Fish and Game Department, care of the State House, in the capital of each State and get full fishing regulations free. You'll also find that most of the sporting goods stores carry these printed regulations, or that you can get them from the local Chambers of Commerce or from the State Publicity or Development Commissions, also reached through the State House in the capital cities. These latter organisations are also most co-operative in writing you full information as to reliable charter boat captains, hotels or camping accommodations, travel routes by car, air, bus, rail or boat. In fact, the transportation companies also in most cases have detailed fishing information, as during recent years they have come to recognise the monetary value of catering to the salt water sportsman.

Other good sources of information are the national sporting magazines, all of which maintain fishing information services.

If you have only a limited time to stay for your fishing, we suggest that you cut down your travel time, thus allowing more of a margin of fishing hours by making use of the airlines. One of our airlines has for 12 years sponsored the Flying Fisherman Club, thus serving thousands whose love of salt water fishing is keen but whose time has been limited. Not only will this airline give you extra fishing hours, but they also give handsome certificates, and if you catch a big enough fish you may have the extra fun of taking home a handsome trophy. While their present services cover the main cities, their proposed services and connecting lines can land you and your party within

easy striking distance of many a salt water hotspot. From Boston or New York you can pick up a plane for Portland and Bangor in Maine; or you can fly to the offshore islands of Martha's Vineyard and Nantucket, which are on their regular runs, with stops at Hyannis, Cape Cod, Massachusetts.

Speaking of Maine, this State has a special department known as the Maine Sea and Shore Fisheries which caters to salt water sport anglers. Your letter addressed to Dick Reid will bring you prompt and reliable information.

In rounding up this "how to get there" dope we immediately discovered that in every State along the North Atlantic coast there is one outstanding U.S. or State highway which takes the salt water fisherman to, or within easy striking distance of, the best fishing. Fishermen's routes we call them.

Starting down in North Carolina with you, our imaginary fisherman who is off to cover the coast from that State to Nova Scotia, we find United States Highway No. 17 is the key route. You pick it up at any point along the coast, head north or south for Wilmington, N.C., and then shoot off on U.S. 421 for Carolina Beach and Fort Fisher, or State 130 or 303 for Southport, which takes you right down to the New Inlet sector. New River Inlet is reached from U.S. 17 by taking State 38 at Folkstone which runs you right down to the Inlet on the Sneads Ferry side. Here you can ferry across to Marines and continue on up to State 24 and swing east to Swansboro, Bogue Sound and Bogue Inlet. From Bogue you continue on to U.S. 70 out of New Bern, which swings up to Atlantic on Core Sound, where you can board the mail boat for Ocracoke and the excellent channel bass fishing to be had at the inlet there. Hatteras Inlet and Oregon Inlet are best reached from the north via Elizabeth City, where you take State 30 to 34 and hence down to the Wright Memorial Bridge across Currituck Sound and then down the beach and across to Roanoke Island, where you can ferry your car across Oregon Inlet, then have a 50-mile sweep down the beach to Hatteras Inlet, or you can leave your car at Manteo and fly over. Good fishing all the way.

U.S. 17 is also Virginia's fishermen's route along the southern shore of Chesapeake if you are coming up from the south. You take the ferry at Norfolk to get over to Cape Charles and there pick up U.S. 13 for Wachapreague and Chincoteague, swinging off on State 180 for the former and State 175 for the latter.

In Maryland, U.S. Highways 213 and 13 are main arteries to the eastern shore fishing grounds of Upper Chesapeake Bay and the most direct route to Chincoteague and Wachapreague, if you are coming from the north, while U.S. 213 from the west leads direct to Ocean City, the hopping off place for the famous offshore white marlin grounds.

Delaware's short but productive coastline is served by State Highway 14, which swings off of U.S. 13 at Harrington and crosses U.S. 113 at Milford. This will take you to Rehoboth Beach and Bethany Beach where surf casting activity is in season from May to November.

U.S. Highway No. 9 and State 4 are New Jersey's fishermen's routes. Skirting the coast from Cape May to Toms River, they put the surf caster in direct contact with many miles of fine beach. State 40 from Manahawkin crosses Barnegat Bay and lands you on the beach at Beach Arlington, whence you can run north to such famous surf casting centres as Surf City, Harvey Cedars, Highpoint and Lovelady, all the way to Barnegat City, or south as far as Holgate. Famed Manasquan Inlet, home port of one of the country's largest sport fishing fleets, is reached either by taking U.S. 9 to Lakewood

and then State 35 to the Inlet, or by coming the long way round on State 35 down through Red Bank, this latter route also serving Belmar and the north shore.

The great salt water fishing grounds at the eastern end of Long Island are New York's contribution to the sport and are easily reached either by State 27 along the south shore, which is the most direct route to Montauk and also connects with Jones Beach, Fire Island (take a boat at Babylon) and Canoe Place on Peconic Bay; or by the Long Island Rail Road out of Pennsylvania Station, which is by far the most comfortable way to make the trip from New York City. Riverhead on Peconic Bay and other northern Long Island waters, as well as the Shelter Island area, are best approached over State Highway 25.

Once you swing up into New England you'll hardly have to move off U.S. Highway No. 1 to reach some of the finest salt water fishing in the country. Striped bass in Connecticut's Niantic and Thames, surf casting for those big linesides at Narragansett, Rhode Island, the whole Narragansett Bay area for that matter, are but a stone's throw from U.S.1. Or, you can take the new bridge across from just above Saunderstown to Jamestown and then a ferry for Newport, which will keep you constantly in touch with weaks, blues, tautog, and, of course, bass. A supplementary fishermen's route in Massachusetts, and a very important one, too, is U.S.6, which carries the northbound sportsman to Buzzards Bay, Cape Cod and the ports of New Bedford and Woods Hole, which are embarkation points for the islands of Martha's Vineyard and Nantucket, as well as the famed bluefish and striper fishing grounds of the Elizabeth Islands. Massachusetts' south shore from the Cape Cod canal to Boston is served by State Highways 3 and 3A, where there is a great deal of excellent striped bass, tautog, mackerel, pollock and ground fishing.

Heading north from Boston, the sportsman has two alternatives. He may either take the hour-run down U.S. 1 to Newburyport and Plum Island Point, where he will find a fishing fleet ready to take him offshore for anything from flounders to tuna; or the shore route, State 127 to Gloucester and Annisquam, which will put him right on the world-famed Ipswich Bay tuna grounds.

U.S. Highway No.1, after leaving Massachusetts, continues through New Hampshire and into Maine. From Newburyport to Portsmouth, New Hampshire, however, the salt water fisherman is best served by U.S. 1A which practically runs along the beach. At Portsmouth he can run inland on U.S. 4, or State 101 for mid-season striper trolling in Great Bay and the Piscataqua River, or find offshore accommodations for pollock, mackerel and bottom fishing.

In Maine, Ogunquit on U.S. 1 is the first salt water fishing centre of note. It was here that Maine's tuna fishing was pioneered and the boys are still doing business at the same old stand. The fishing grounds of Casco Bay, while accessible by boat from Portland, are more conveniently reached by leaving U.S. 1 at Brunswick and taking State 24 to Orrs Island and Bailey's Island, where a well-equipped tuna fishing fleet is harboured. All the way down the Maine coast, U.S.1 points the way. You have only to bear right on any of the dozens of secondary routes which serve the rugged, spruce clad fingers of land, and you will find salt water fishing galore, for while the tuna seem to peter out after leaving Casco Bay, rivers like the Kennebec, Sheepscott and Penobscot afford fine striped bass fishing, while offshore, pollock and mackerel are plentiful.

Last, but not least, in our swing north-east along the north Atlantic coast are the world famous tuna grounds of Nova Scotia. For the sportsman who is concerned with

reaching his destination as quickly and with as little inconvenience as possible, the best route is comfortably overnight (June to September) from Boston to Yarmouth, Nova Scotia. If you take your car on the boat, it is then only a short run to the Wedgeport tuna grounds, well equipped with tackle, fine boats and experienced guides.

While most anglers think of Nova Scotia as the epitome of giant bluefin tuna fishing—and that it certainly is—don't overlook the striped bass, pollock and mackerel fishing which this beautiful island has. If, for variety, you want salmon and trout, Nova Scotia has them too.



SMALLER MARINE GAME FISH OF THE EAST COAST

(SOUTH OF CAPE HATTERAS)

By PHILIP WYLIE



THE linear distance south from Cape Hatteras, in the centre of the eastern coast of the United States, to Key West, a city of some 15,000 near the terminus of the national seaboard, is well over 1,000 miles. The inshore water is somewhat chilled by the last drift of an Arctic current until the middle of the State of Florida is reached. There, the Gulf Stream approaches land and from Palm Beach to the westward bend in the archipelago of the "keys" it is virtually contiguous with land. Beyond that, the keys stretch through a nebulous meeting-place of the Atlantic, the Caribbean and the Gulf of Mexico. In this region live some six hundred species of fish, most of which may under proper circumstances be considered "game" by the angler.

Of these six hundred, hardly a dozen fall in the category of great fish—marlins, sailfish, broadbill swordfish, tuna, mako sharks, and the like. The remainder—five hundred odd varieties—are the so-called "smaller marine game fishes," and these are taken by trolling, by still-fishing, by casting bait and artificial bait, by the use of flies, both wet and dry, by surf casting, by spinning, by spearing, goggle-fishing, by bow and arrow, and numerous other means both sporting and non-sporting, orthodox and impromptu. Thus it will be seen that even a volume the length of this one, dedicated altogether to the study of angling in the region under consideration, would not have compass for more than a cursory survey of species and of angling possibilities.

A reader with imagination may also perceive that no fisherman, however versatile and indefatigable, will have taken all the species in all the various sub-areas, latitudes and waters, by all the known means. To have done so, an angler would have had to have commenced his activity at the time of Ponce de Leon and Ferdinand de Soto—the first explorers of the territory—and continued through the centuries down to the present hour without daring to miss a day of fishing, however inclement the weather or apathetic his quarry. No chapter, that is to say, can adequately discuss the small marine fish south of Hatteras.

Certain omissions are necessary, to begin with. For example, while many of the species of fish taken from and off the coast of south-eastern Florida are found to the north—in some instances as far away as Long Island—the commonest types from Hatteras, North Carolina to Florida, are those caught in the vicinity of and just to the north of that Cape. The methods are the same for taking them. So it would be

redundant here to enter into a discussion—say—of surf casting for striped bass, drum and the like. One such appears elsewhere in this volume and is the work of a more able authority upon that subject than this writer. Again, certain oversights are inevitable. Not only is it impossible to describe six hundred different fish in this space, but many of them may be taken by every single one of the methods known to Isaac's followers—an additional embarrassment of informative wealth.

A cross-section of the fish population of a typical locus in Florida coastal water, together with a discussion of how these fish may be taken, seems, to this writer, the one feasible means of furnishing any conception of the subject. Let us, then, assume an imaginary point on the Florida coast somewhere near the southern curve of the peninsula and hypothesize the commonest possibilities in that segment.

At this point, our imaginary shore is a gradually sloping beach composed of "sand" that has no true sand in it at all but consists of minutely broken corals and shells, sea-worn to small smoothness. Through this beach, to a salt water estuary or bay behind, runs a tidal "inlet." There are coral outcrops upon the beach—which gradually descends into the sea. The depth, a thousand yards off shore, is scarcely a hundred feet. Here, however, the bottom is no longer sandy but a true coral reef—a submarine land of lunar appearance—a monstrous, dim, Dantean region of chasms and coral bridges, holes and hills, in which the trees themselves are corals and millepores of every colour and weird shape. Here sea anemones eddy like flowers. Here great weeds and grasses grow up toward the light. And here, where the reef rises living and formidable to the surface, sits a lighthouse. Beyond this reef—which reaches the top of the sea and descends two or three hundred feet—the bottom pitches abruptly into the great valley that contains the Gulf Stream. Not many miles off shore, a depth of two thousand or more feet may be discovered; above it flows, at some five or so miles per hour, a gigantic, warm river of salt water.

This is the setting, then, and it may be duplicated in many places.

Even if our angler is a land-bound boy of ten and his rod is a simple length of bamboo to which is tied a short line, a small hook, and a bit of fish, shrimp, conch, or crawfish for bait, his possibilities are almost unlimited. His catch, as a rule, will consist of snappers, grunts, margate, sand perch and such—all perch-like fish in contour, all fine pan fish, many coloured as brightly as macaws. But, as he sits on a coral outcrop along the sea, or on a jetty, beside the inlet, or along the bay shore on some retaining wall, he may with his inadequate tackle, hook a shark, a barracuda, a sting-ray, a crevalle jack, an amberjack, a snook, a tarpon, a pompano, grouper, trout, or channel bass.

Substitute for the boy a capable angler with a fly-rod and detach him from shore by rowboat. Let him cast his delicate lures on the waters of the bay, the inlet, or if the day is calm, over the shallow waters of the open ocean. A sport is discovered which, although tens of thousands now enjoy it, is still only at its beginning in this area. Many, many of the common salt water fish will take a fly—wet or dry.

There is the tarpon. This famous fish is paved with large silver-tipped scales. He is more heavily built than a salmon. His aerial acrobatics, his endurance, and his violence are without peer in any single fish. Pound for pound, the white marlin may be stronger. Ounce for ounce, the bonefish may be swifter. Foot for foot, the king mackerel may be able to leap higher. But the tarpon is a combining form of these and his quest is a cult. To tackle him with equipment designed for brook trout is not in the

least foolhardy—specimens of 15 lbs. or more have been caught in this fashion. But it has one hazard which is common to every form of light tackle angling in this place: the angler's fly, placed carefully in a cove or near a patch of weeds where small tarpon are feeding—rolling metallicly in sunlight (or moonlight!)—may be seized by a great-grandfather of the intended quarry. There will ensue a roar of water such as would be occasioned by a moose leaping into it and a tarpon of 150 lbs. will make the briefest imaginable contact with the fly-fisherman—and the shortest conceivable work of his lure and trace. The tarpon—a muddy-fleshed creature—is not prized as food. Old timers always release their fish unless a suspected record has been taken—or a specimen is desired for mounting.

There is the barracuda. This fish—silver as a spoon, dappled with black—is a pike-like animal and, except for his colouring (and one other feature) he might be a pike. The other feature is his teeth—the terror of half the fish-eats-man legends. They are very big teeth. The barracuda lies, stick-stiff, submarine-ominous, just under the surface in any spot that suits his hungry fancy. The angler in the rowboat, with his trout-rod, may very likely see a dozen in a day. He had best beware of tempting any 'cuda more than a yard long; the chances are, if he did, that he would lose another fly, hook, and trace, with some line as well. But a lesser barracuda is his dish. The 'cuda fights like any pike, thrashing the surface, leaping, running hard, sounding to a small depth, and yanking his head tremendously. When brought to gaff (a hand-net is not big enough for him), he is cautiously unhooked—with pliers; reaching into his mouth is excessively ill-advised!

The barracuda, it should perhaps be said here, is more edible than eating. He has, beyond question, mangled human beings—usually, it appears, when they have entered the water suddenly or made a surprise splash, so that he struck as if automatically. But his menace is over-estimated. The Florida beaches are protected by jetties, and around the jetties where the hundreds of thousands of winter visitors do their swimming, barracudas abound—unbeknown to most of the bathers, fortunately for local Chambers of Commerce. The bathers, needless to say, go unbitten year in and out. An accidental strike of a person by a 'cuda is extremely rare; the stinging Portuguese man-o'-war is a far greater hazard to swimming comfort in Florida.

Back to the fly fisherman: in the land-bound estuaries, under the mangroves, his fly may be taken by a snook (robalo)—another remote pike relation, not anthropophagous; a gold and greenish character whose weight often exceeds 25 lbs. A salt water trout, which resembles the real thing but is really a weakfish, may disappoint him in comparison with the cold, fresh water fish of the same name for, though the salt water trout will take a fly, he is not the fighting match for the real trouts of stream and river. He is, however, of a similarly excellent comestibility.

Another cast—a mackerel—of which nothing need be said save that one mackerel is more difficult, livelier and more fun to catch on 2 ozs. of bamboo than thousands in a trawled net.

A small, whitish or yellowish fly, a cast toward shore, and one of the multitudes of snappers takes the lure. Fly-fishing for snappers—the polychromatic, perchlike fish already mentioned—is a relatively new sport. It has produced addicts of its own, however. The snapper is a swift, tricky battler whose weight will run from a few ounces to several pounds—with that everlasting exception, of course, of an individual of a species that tops 50 lbs.—even 100. There are, moreover, many old Florida fishing

hands who claim snapper to be the finest food fish in the sea from the standpoint of delicacy and flavour. Like other angling points, this is a moot one.

A cast at waters likely to be inhabited by snapper may result in the hooking of a grouper, however, or a jack. There are several groupers—bass-like in looks, beautifully patterned in bronzy brown, black, grey, and also, a sort which are speckled with every colour and known as rock hinds. The grouper, when hooked, endeavours with considerable skill and great strength to return to and hole up in the deepest portion of his watery abode—which makes it interesting for the angler, especially if the region is weedy, rocky, filled with sunken snags, or arched everywhere with the croquet wickets of the mangrove, all of which hazards are likely to exist in one spot. The jack is a member of the family *Carangidae*, to which the pompanos also belong. This group tends to produce roundish fish, flat, mackerel-tailed, and decorated in colour schemes predominated by yellow. Silver and green usually appear in the design. But, when the narrator of Florida fishing says “jack,” he has still spoken only in uncertain terms for the “jack” which our fly-fisherman has just “hung” may be a crevalle or it may be an amberjack or it may be a horse-eye or a yellow or one of several other sorts. Indeed, it may be a pompano, in which case, and if he takes it, he will do very well to plan his supper around it.

A bonefish, of which more presently, has been known to seize a fly and this precipitates a piscatorial extremity which rarely ends satisfactorily for the fisherman. The permit, which is a huge pompano, has also seized flies, but there is no literature concerning the taking of permits by the fly-fishing method. A hundred—nay, several hundred—sorts of fish might get it into their heads to seize and devour a well-managed Parmachene Belle or Grey Miller; a cutlass fish, which is like an eel in appearance; a lizard fish, which is beyond description; various pound-sized, gaudy, tropical denizens, all interesting, all edible; a channel bass; and the chiro—a slim, fast-moving, high-leaping all-silver fish—all these will provide any fresh water, trout-wedded angler with sharp surprises.

Most of these same fish have been taken along the beach in the sea itself on calm days by fly-fishermen. And all of them may be taken on bait-casting rods with artificial lures. The bait-casting rod, with its shorter, somewhat less fragile tip, its 1 or 200 yds. of 10 to 15 lb. test line, and a reel which may be equipped with a star-drag, gives the angler a better opportunity to deal with the catch-as-catch-can results of casting in Florida salt water. Tarpon of more than 100 lbs., for instance, have been taken on bait-casting tackle which was originally designed, of course, for fresh water angling for bass, pickerel, and the like. Spinning, which is coming into favour in these waters, will also ensure action from the same species.

It might be added here that nearly all these same fish may be taken by trolling real or artificial baits along the surface either by rowing or by the use of a motor. And at this point it is well to remind the reader that, in our cross-section of a typical area, we have literally only scratched the surface—and the surface of the calm waters near the land at that! Substitute a bait of shrimp or fish for the fly—lower the hook to or near to the bottom—and presto!—not just the foregoing fish are possibilities but a host of new ones, including, for example, the various angel fish, spade-shaped and among the most gorgeously coloured animals on the planet, as well as salt water catfish. Still, our angler has tested only the comparatively shallow water.

Before leaving it, he had best investigate bonefishing and fishing for permit. Thousands

of ladies and gentlemen who have made this investigation have never conducted any further experiments—or have abandoned all other forms of angling to concentrate on this one. The bonefish reaches a size of some 16 lbs. (the tackle record is about sixteen) every gram of which is famed in song and story. It is a normal shaped fish which has, like the tarpon and the chiro, a chrome-hued exterior and spring-steel insides. It feeds on the bottom—following intrickling tides over shoals at depths that range down to a few inches. Thus it may be spotted by dorsal fin and tail while feeding and stalked by poling a light-draught boat over the “flats.” It also stirs up mud in its feeding and the “muds” are another sign of its presence.

When no fish are to be seen, the angler “chums” a likely area by throwing bits of shrimp, crab or conch into the water, casts forth a baited hook, and waits. The strike of a bonefish is followed by a chain-lightning rush in any and every direction and a fast, racy battle. The sight of a fisherman, down to his last few yards of line, rushing recklessly over the flats through the thin covering of sea water in pursuit of a bonefish is not uncommon, nor is the sound and spectacle of a lady angler, standing amidships of a rowboat, voicing her anxieties and holding her rod high, as a bonefish makes a half-dozen fast circuits of the craft preparatory, often enough, to running back and forth beneath it several times more.

The permit, which grows to 40 lbs., is a pompano with bonefish habits, propensities, and speed—graduated upwards according to his weight. He is usually taken in somewhat deeper water—two or three feet—and often on hard white coral bottom. Light tackle is used.

So much—and it is not a tithe—for inshore fishing. Fishing on the reef proper—near, say, to the lighthouse we have mentioned, where the water varies in depth from 1 to 50 ft.—is done by trolling and by still-fishing with live bait. Here the groupers come in weights of 40 to 70 lbs. and more—the amberjacks are of a size—and the snappers are 15 or 20 lbs. in weight; jewfishes, a term used for *Promicrops*, a very large grouper up to 700 lbs., may be hooked (smaller ones are to be found in the waters previously discussed) and barracudas run as big as conscience will allow—to 6 or 7 ft., at any rate. Still-fishing on this—the “big” reef (there are small coral “gardens” in the protected waters which are miniatures of the outside reef) produces large specimens of angels, porgies (black and yellow beauties), queen triggers, which defy the art of description for vividness, and multitudes of others.

Here, too, mackerel are caught in numbers, as well as king mackerel, which are plainer to look upon and larger in size, as they range to 60 or more lbs. King mackerel are usually taken by trolling with a sinker. When, however, they strike a surface bait, they sometimes carry the bait into the air with a 15 ft. leap or, turning the tactic about, leap as high to plunge on to the bait. In such water, bonitas (or bonitos), mackerel relatives, blue and silver, chunkily built, of a surprising strength and with red meat that makes a superb bait for other fish, are also taken. The common bonito, *Sarda sarda*, ranges up to 25 lbs. Where they are found, the Oceanic or Arctic bonito, *Katsuwonus*, similar in size and vehemence and painted with flashy black stripes on the iridescent skin of its lower body, are also at times discovered. And with these may be a bronze-blue albacore of about the same size—delicious as any tuna ever tasted—and one of the mightier minor fighters that swims between shore and Gulf Stream. Over the reef, too, one occasionally encounters the African “pompano” *Hynnys*, a 20- to 35-pounder, gold and silver, flat, steep-faced, with streamers on his fins, and capable of putting up a notable surface-running battle.

These, again, are samples. The reef fisherman has hundreds of potential finned clients—even including the sharks, better known for making him trouble by taking his baits and by seizing his fish before he can do so himself. The empire of the reef is populous and variegated and it would pay anyone greatly interested to consult a museum or, at least, a textbook of fish, to learn what he might take in that region. In Florida, to this day, the angler occasionally brings to shore from the reef or the Gulf Stream a specimen which he cannot identify and which nobody else can identify—for the simple reason that no person sophisticated in the glossary of fish has ever before seen that particular breed.

Our investigation of an imaginary cross-section of the salt water fishing off southeastern United States, the reader will now note, has taken him to some depth and to some distance from shore. A further word concerning equipment is now essential. Obviously, the angler cannot expect to heave 70 lb. fish, of the utmost violence of temperament, from a depth of a 100 ft. or more (to which they are prone to dive upon being hooked) with tackle suitable for brook trout, black bass, chub, pickerel, or the like. For fishing over and upon the great reef off Florida, and in the Gulf Stream beyond, sturdier gear is needed. And, although hardy individuals do venture near to the Gulf Stream in canoes and boats propelled by small outboard motors—when the weather is calm and stable—most persons are reluctant to present themselves in such vessels to passing sharks of enormous size, porpoises, whales, and so forth. Furthermore, the Gulf Stream, generally stirred by trade winds, is normally inconvenient to rowboats.

Ocean fishing is done as a rule in seaworthy craft of from 25 to 45 ft. which are often equipped with two motors. There are hundreds of such boats for charter in the Florida area—operated by one guide, or by a captain and mate who are seasoned experts, prepared to instruct the neophyte. The tackle on these “charter-boats” is supplied and ranges from light rods with small reels supporting 3 or 400 yds. of 6- or 9-thread line (18 to 27 lb. breaking strain) to wrist-thick rods, keg-sized reels, and line strong enough to hang a man. The interest of all genuine anglers centres, naturally, upon how large a fish of each species can be taken with how light a line.

Trolling is the commonest form of angling over the reef and in the Gulf Stream—though, as has been said, still-fishing with live bait is productive. Drifting with live bait is also successful. Baits for trolling are whole fishes—mullet, balao, etc.—and strips cut from the bellies of larger fish, especially the bonito. These are attached to the line by a wire trace or leader and trolled from 20 to a 100 ft. astern.

Where outriggers are used (and they are employed very generally) sailfish are the primary quarry. An outrigger is a pole set to make an acute angle with the vertical axis of the ship; it is equipped with a halyard on which is an ordinary, spring-type clothes pin. The angler's bait is dropped back some 70 ft. or so, a bit of his line at the rod-tip is pinched into the clothes pin and the halyard raises pin and line to the high top of the outrigger. The bait now trolls outside, or beyond, the wake. A striking fish pulls the line from the clothes pin and the fall of slack, caused by the outrigger height, gives the striking fish an automatic opportunity to swallow the bait before the angler can interfere by too sudden a jerk. The forward motion of the boat takes up this slack line in a few seconds, during which the fish presumably has devoured the bait and at which point it is time for the angler to set the hook.

In the case of sailfish, the function of the outrigger is obvious, for sailfish as a

rule first hit the bait with their bills and then turn about to devour it. They require the bait to lie "dead"—which the outrigger permits. In the case of the so-called "smaller" game fish of the reef and Stream, however, the outrigger is something of a handicap, as these strike directly and a direct tension on the line from the moment of the strike is advisable. In the moments while the slack dropped from the clothes pin is drawing taut, these fish may feel the hook and eject the bait.

In the Gulf Stream and along its edges occasional jacks and many bonitos, albacores, kingfish, and other species already mentioned will be taken. The dolphin is also abundant in the Stream—not the porpoise-dolphin of heraldry, but the green, blue, gold, white, silver miracle of colour which occasioned Shelley's lament, as he saw it dying and watched the incredible hues fade away. Many Stream anglers consider the dolphin the hardest fighting fish alive. It runs—it leaps—and, since it travels often enough in schools—it frequently provides every line that is being trolled all at once with a fish. Other "mackerel-types" of fish (and even the jacks—the pompanos—with their forked tails and streamlined contours belong remotely in this category) are taken in the Gulf Stream. Among them, for example, is a famous tackle-smasher known as the wahoo—a firm, elongate, racy fish of deep blue with dark zebra-like stripes which fade soon after it is brought aboard.

Many Gulf Stream anglers carry on their boats a fly rod or casting rod against the chance of encountering a school of Stream fish small enough for such tackle. Any one who has taken a 3- or 4-lb. dolphin in this fashion—or a small bonito—carries in his memory a private criterion for the measurement of the strength and endurance of salt water fish as compared with fresh water species.

The foregoing is, as was said at the outset, a mere glimpse of one cross-section of marine angling in the south-eastern United States. Many of the fish mentioned here range north toward Hatteras and are taken in the manner here described. Surf casting has been neglected. In Florida, it produces not only jacks, pompano, mackerel, king mackerel, various basses, and bonefish, but even, on rare occasion, a sailfish. Various specialized forms of angling have been ignored. But, then, the angler in Florida salt water never knows what may happen. Six hundred kinds of fish await him. Rattlesnakes washed out to sea have struck his lures, and crocodiles (not alligators)—besides terns, gulls, and pelicans. For he is in teeming territory; fishing in the greatest aquarium on earth. If he seeks fish, here they are. If it is peace, a fascinating sky-panoply, an indigo sea, low-lying palm-lands, beauty bemused—that, too, abounds here.

THE SMALLER GAME FISH OF THE PACIFIC COAST

By GEORGE C. THOMAS, III
WILLIAM W. LOVETT, JR.

PART I



IN THIS day of highly specialised salt water fishing, it is unfortunate that poundage and records have come to play such an important part in so many writings. The emphasis is on size, with gameness assumed to be in proportion. The medium-sized fish of the ocean gave sea angling its start, and the painfully and slowly learned lessons which only time could teach were later adapted to larger quarry. It is the smaller game fish of the Pacific Coast of North and Central America with which we are chiefly concerned.

Dr Charles Frederick Holder, the founder and first president of the Tuna Club, called these smaller game fish "Delight-makers," and we think the name well chosen. He says, in his *Log of a Sea Angler*, one of several fishing books which he published just after the turn of the century:

"I believe that it was in 1886 that I first landed at Santa Catalina, and then I saw men catching fish from the beach which tipped the scales at from 25 to 40 lbs.—fish which broke big cod lines and played with lusty men ten or fifteen minutes before expressing a willingness to be caught—I came to the conclusion that I had discovered a sort of sea angling paradise, and forthwith sent for my rod, which I think was the first to bend in these bays."

Ocean fishing, as we know it, dates from Dr Holder's time, and any discussion of the game fish of the Pacific, either large or small, rightfully should be dedicated to him with a feeling almost approaching reverence. He and the Tuna Club are known wherever rods bend and reels sing.

Unfortunately, yes, tragically, the hordes of inshore game which Dr Holder loved are no longer so plentiful, decimated by commercial interests and driven away by crowding civilisation. In this respect, Catalina lives largely in the past, but there it will live, and long. Fine fishing still exists in these waters, but the superlative old days are gone, probably for ever.

Not so many years ago, two fishermen, most of whose experience had been with the larger fish, tuna, marlin, and broadbill, decided to investigate Dr Holder's delight-makers. The ocean fishing which they had done had whetted their appetites, and stories



PLATE 26

FRESHWATER DRUM
(*APLODINOTUS GRUNNIENS*)

N. AMERICA

of not too distant waters could not help but intrigue, stories of the striped bass of the Sacramento, of the Mexican cruises of such men as Mr Keith Spalding, Mr Willetts J. Hole, Mr Allen Hancock and others, pioneering new fields. These two fishermen listened, and thither they went. Their experiences and findings, fortified by investigation and augmented by all available data, will form the basis for the information contained in this chapter. Most of the places have been visited and nearly all the fish listed have been caught by one or both of them.

Perhaps at this point it might be well to define "Delight-makers," and to tell why the capture of these particular varieties is so enjoyable. As we see it, they are the Ocean game fish which range up to 100 lbs. in weight, from Alaska to Panama and which fight to the limit of their endurance. It would be impossible to describe all fish which might be caught within this tremendous area, so we have limited ourselves to those which have furnished us with the greatest amount of pleasure or amusement and a few which are particularly delicious on the table. These fish can be taken on the lighter types of tackle, by which we mean rods which are suited to use in a belt socket rather than those which require a fighting chair with a universal socket or gimbal attached, and lines which do not exceed nine thread except under unusual circumstances. These smaller fish, when caught on these lighter types of tackle, hold a charm often lacking in the larger ones. As a rule there is more action, it is "not so long between drinks," endless days of fruitless trolling do not exist and the greatest thrill of all fishing, the strike, is oft repeated. There is less physical labour and far more angling technique. Finesse, rather than great strength, is at a premium. Then, too, the handling of the boat is not such a deciding factor; the angler is more on his own. While we must confess that the landing of a truly large fish is an extremely satisfying experience, nevertheless the mental and physical strain during the fight often takes the edge from the enjoyment. Enjoyment, after all, is what we are seeking—not glory. Fun is what counts; fun during the fight and fun after it; relaxation, not glamour.

PART II

Tackle and Equipment

A discussion of tackle and equipment certainly belongs in any treatise on fishing. At the time of Dr Holder's first visit to Catalina, ocean fishing equipment consisted of any rod, reel, and line which suited the fancy of the individual. The rod "which I think was the first to bend in these bays" and its attendant reel and line were a far cry from present day standards. Undoubtedly, it was of beautiful workmanship, and in some ways it probably differed little from modern ones. To be sure, it was longer and had less backbone, but the fact that it was jointed was its chief drawback. Its line was inferior, with less breaking strength per thread, and its reel, without friction drag, was adequate for small waters, but was most certainly never designed for a white sea bass or yellowtail which could strip a 100 yds. or more line in one rush. Many skinned knuckles, burned fingers, and other angling tragedies resulted. It is to Holder and the

keen sportsmen with whom he surrounded himself that we owe our modern excellent equipment and our present day universally recognised tackle specifications. Except for the mechanical improvement of reels and the addition of the star or friction drag, modern tackle is little different from that devised by these men just after the turn of the century. Heavier tackle for monster fish has been added, and additional classifications have come into being. The ultimate result has been the adoption of complete tackle specifications by the International Game Fish Association. Their standards and rules should be recognised by all sportsmen who are interested in matching their skill with others. For the reader's information we can do no better than refer him to the notes which are given on page 408.

Personally, we feel that 3-6 and 6-9 are adequate for practically all of the fish covered in this chapter; however, we have included 10-15 (medium light) for those who feel the need for more power under certain conditions or circumstances.

Most of the fishing clubs have limited the tips of fishing rods to wood or cane, which in our lighter ones, means split bamboo. In the better grades, only the weathered side of Tonkin cane is used. Experiments with various materials, from lighter metals such as beryllium-copper to plastics and glass, undoubtedly will provide suitable substitutes in the very near future.

For all but small fish, reels with free spools and friction drags are essential. Maintaining a steady pressure is easier and casting is much facilitated. They should be of a size properly to balance the rod used. It is the opinion of the writers that a 4-0 and a 6-0 would amply cover all requirements. Surf casting tackle differs materially and will be covered later.

Leaders of two types will be necessary in our fishing. Single strand piano wire has all the advantage in trolling. It is much more convenient to use, seldom kinks, and can be cut to any length without the trouble of a complicated splice or tie. It is much cheaper, and a quantity can be had at little expense. It is far easier to handle with a fish at gaff, and if worn or crooked, can be snipped off and discarded. Light flexible twisted or cable leaders are best for live bait fishing. They can be purchased already made up with hook and swivel, in correct lengths.

As for baits, the salted sardines and anchovies of other days have given place to the familiar feather and bone jigs, the spoons, artificial minnows and squids, as well as other less popular lures. Natural and cut baits have their advantages, but these often are hard to procure or messy to prepare. For live bait fishing, anchovies, sardines or small mackerel are furnished by the boatman or barge owner.

Gaffs generally are provided by the guide or boatman. The stiff-handle type is all that we will require, since all of these fish are small enough to handle without the detachable or flying gaff head. The size of the head and the length of the handle must be governed by the size of the fish sought and the freeboard of the boat. In the main, the smaller the better since they are easier to use.

Belt sockets are a necessity and we feel that the old-fashioned leather cup type is hard to beat. Modern, patented belt sockets, which hold the butt of the rod firmly and prevent turning may seem to simplify the angler's job, but anyone who fishes extensively soon learns to appreciate the versatility of the older type.

So much for equipment. We have mentioned the essentials only. Knives, pliers, field glasses, swivels and rod holders, all have their merits, but if all useful items were included the angler's kit would become a burden.

PART III

Fishing Methods and Types

For the sake of clarity, we have divided our fishing into trolling, live bait fishing, and surf casting. Trolling, perhaps, provides the greatest sport and accounts for the most exceptional catches. Of course, it is a matter of preference, but trolling particularly appeals to us. It deals with fish caught from a moving boat with a trolled lure, and at first glance it would seem to be the easiest, most certainly the laziest, of the methods. The angler generally sits in the stern of the boat, either determinedly holding the rod, or, more lackadaisically and far too often, propping it in a rod holder. The novice necessarily must let his boatman do all of the work in finding fish, and must rely on him for instructions. To the more seasoned angler, a large part of the fun comes from finding and stalking the quarry, and then manœuvring the boat for the best results. Choice of baits and boat speed are all important; experience pays dividends.

To the expert, the surface of the ocean is an opened book, with the pages waiting to be read. The smoother the sea, the clearer the writing, but wind ruffles the print, at times making it hard to decipher. It is possible to spot schools of fish at great depths, but this requires a sense born of long and close observation. One must be able to understand and grasp instantly the meaning of the actions of birds. Whether they wheel aimlessly, search expectantly, or, screaming, turning and banking, hover over fish. The way which they hover and the way which they work may not only orient the quarry but classify it as well. Schools of bait on the surface are clues, as are the actions of the flying fish, scales in the water where big fish have been feeding, and many other signs which the angler soon learns to recognise. Off-shore patches of kelp harbour dolphin or yellowtail. Often the actions of even one small shark mark tuna. At times the sea is dead in places and one must look elsewhere. These signs and their interpretation mean much and add interest.

One particular method of trolling is almost exclusively confined to Southern California waters. Originally, bluefin tuna could be taken by almost any method. Then, for some inexplicable reason, they changed their habits and could not be induced to take bait, no matter how skilfully it was offered. So in 1905, Captain George C. Farnsworth, then as now the outstanding Catalina guide, developed the technique of using a kite, fastened to the trolled fishing line, to carry the bait and impart an extremely lifelike action to it. As a matter of fact, this kite method was used by certain natives of the South Pacific as well as poachers in England, and was rediscovered and perfected by Farnsworth. Briefly, it consists in attaching a kite, some several hundred feet in the air, by means of a light breaking thread, to the main fishing line close to the leader, and running the boat across the wind. The kite, naturally, is carried down wind, and its pull draws the fishing line and the bait far abeam of the boat, well away from any disturbing influence of the wake. By lifting on the rod, the angler can make the bait jump, skitter and splash, providing an irresistible lure. Here, bluefin tuna of any considerable size simply cannot be hooked by any other method, but the kite is almost infallible, and it is regrettable that anglers in other parts of the world have not needed to become skilled in this art. It is by all odds the most fascinating and exacting type of

fishing which we have ever done. The technique of the kite, however, would consume a volume in itself, and we merely mention it in passing, with the hope that all anglers someday may revel in its use by an expert guide.

During recent years outriggers have come into great favour, particularly in other parts of the world. Some guides and anglers have even gone so far as to say that they have supplanted the kite and made it obsolete. Anyone who has fished Southern California waters for bluefin tuna of 50 lbs. or more will challenge this view. Outriggers can be most useful at times. They are fascinating to watch but there is little, really, to recommend them for the fish which we are seeking. As a matter of interest, some genius years ago conceived the idea of using a sea sled for fishing. We moderns would probably call it a paravane, like those used by minesweepers. This sled, and it truly resembles a sled, having two keels or runners, connected on top, is towed by a bridled line from the mast. It works out abeam, almost parallel to the boat, and the fishing line is attached to it, much as with the kite. Many yellowtail were caught by this method in the early days.

With the exception of surf fish and bottom fish, including the giant sea bass, all the game fish of this area may be taken by some form of trolling.

Live bait fishing has been finding more and more advocates during recent years. Generally, even in poor waters, this type of fishing is productive, and may be followed by anyone at little cost. Live baiters are available for private charter, and public live bait boats at so much a head make daily trips to the fishing grounds. Some of these accommodate fifty or more anglers at a time. It is true that confusion generally reigns, but thrills and excitement far overbalance this confusion. In practice, live bait fishing consists of angling from an anchored or drifting boat. The bait usually is sardines, anchovies or small mackerel and is kept in large tanks equipped with circulation pumps. After the fishing grounds have been reached and the boat anchored, a helper throws handfuls of minnows overboard as chum. The angler casts into the feeding fish. The better casters will get far the largest share of the catch, but in the main, the day's total depends on weather conditions, the ability and knowledge of the boat's skipper and the quality of the bait.

Surf fishing is primarily for younger men, although a lot of oldsters still keep at it. Under some conditions this fishing can be quite strenuous; sun, sand and water combine to bring discomfort. Theoretically it is not essential for a good caster to enter the water at all, as a practical matter he will most frequently end up soaked from the waist down. Perhaps the chief thrill of this fishing is the cast itself, the satisfaction of a long one with a free running reel and no back lash. Fundamentally this type of fishing consists in casting a line with a heavy sinker far enough out into the surf to reach the place at which the fish are lying at the time. Frequently at high tides surf fish are very close to the shore and many anglers cast too far for best results. At other times a long cast is required since the fish are beyond the breakers. This primarily is due to the fact that large, heavy combers stir up the sand and carry many types of crabs, shrimps and other food into the surf in their backwash. At lower tides the breakers are not disturbing the bottom to such a degree and the fish are not feeding actively. On some beaches an experienced fisherman will be able to locate certain points where the action of the waves is having the greatest effect upon the sand, thereby returning to the sea a larger quantity of food. These spots or pockets he will select as the most likely for success. At other beaches, notably the ones which have a very gradual slope, few such pockets will be found.



PLATE 27

WHITEFISH (*CORREGONUS CLUPEIFORMIS*)

N. AMERICA



PLATE 28

JACK CREVALLY (*CARANX HIPPOS*)

AMERICA

Conditions vary materially, and where there is considerable kelp, loose pieces or bunches constantly are wrapping themselves around the line, causing such friction in the water as to drag the sinker, and it is advisable to use a heavier one.

Surf casting rods necessarily are long. Many are made from calcutta poles with improvised reel seats and inexpensive guides which the fisherman has wrapped at home. Such equipment is effective enough for those who live at or near the beaches, but of course is too cumbersome for much travelling. The most popular rods are made in two sections, a 6 ft. or longer tip and a 30 in. butt piece. Some tips have sufficient action so that the butt piece may be stiff; others require a spring butt. In recent years the tendency has been toward lighter and lighter equipment, the theory being that small lines can be held by small sinkers and the weight of the rod itself likewise can be reduced. Where the water is free from kelp the lighter tackle is preferable. Reels for this fishing should have a free spool and may or may not be equipped with a friction or star drag. It is well to use some form of thumbstall unless your thumb is a tough one, as the line will gather sand and many burned thumbs are the result. On this coast the best all-round bait is the soft-shelled sand crab, but at times it is extremely hard to find crabs which have just shed, and the fish will not take the hard ones. Clams, mussels, abalones (where their use is legal), rockworms and squid are other favoured baits.

The prize of the surf is the corbina, with the spotfin croaker, the yellowfin croaker and the various surf perches following in that order. All of these fish may be caught practically throughout the year, with the possible exception of the spotfin croaker, although the better fishing is to be had during the spring and summer. Surf fish are excellent for food, but the corbina, sometimes referred to as the California whiting, is by far the most delicious. Skates, sting rays and shovelnose sharks sometimes are hooked by the surf caster, and if they are large ones they may give him considerable difficulty.

PART IV

Catalina and Tuna Club Waters

The average fisherman, contemplating a trip to the Pacific, almost invariably thinks of the Channel Islands of Southern California. Much has been written of these Tuna Club waters, which are defined as being "between a line drawn due west from Point Concepcion and a line drawn due south from the International Boundary Line (United States and Mexico), until you clear the Coronado Islands, thence due west." This includes all fishing grounds adjacent to and immediately surrounding the Channel Islands. Many fishing clubs and organisations limit their competitions to this area. There are eleven of these islands. They lie in a north-west—south-easterly position off the coast, and range over some 300 miles of semi-tropic shoreline. Actually, they constitute three groups: the Santa Barbara Islands which are the farthest north, extending from Point Concepcion to Ventura; the Catalina group off Los Angeles; and the Coronados, directly south of San Diego. The latter are Mexican possessions, and permission must be obtained to visit them. The northern group is composed of San Miguel, Santa Rosa, Santa Cruz, and Anacapa, of which Santa Cruz is the largest,

having a length of 27 miles. All but Anacapa are privately owned or leased, and few landings are sanctioned. Anchorages, however, are available. Anacapa is government property.

The best general fishing, and certainly the most accessible, is to be found in the vicinity of Los Angeles. Here there are four islands: Catalina, the largest and by far the most important, with its tourist town of Avalon; San Clemente, farther to sea but now closed to fishing and cruising by the Navy; Santa Barbara Islet to the west; and off-shore San Nicolas, which is seldom visited because of its rough water, and lack of protected coves. Avalon was the first true base for sport fishing in the modern sense, since it was here that large bluefin tuna, and then yellowfin originally were caught on rod and reel. Here, too, the first marlin was brought to gaff, and later the first broadbill swordfish. (Incidentally this broadbill was caught with a kite.) Avalon rightly has been called the cradle of sea angling. During recent years, as we have already stated, the fishing has fallen off. Any place so widely heralded, particularly when it is so close to a large metropolis, sooner or later will be overfished. The demand for food fish, too, will eventually lead to depletion no matter how wisely conservation has been practised, and unfortunately we cannot truthfully say that conservation has been practised wisely here. When the sportsman is limited in his daily catch to fifteen game fish on rod and reel, while for most varieties there is no limit to the tonnage a commercial fisherman may take in his nets or otherwise, it is easy to see that something is wrong.

The State of California requires that an ocean fishing licence be obtained by anglers seeking the following fish: tuna, yellowtail, marlin, broadbill swordfish, black or giant sea bass, barracuda, white sea bass, albacore, bonito, rock bass, kelp bass, California whiting or corbina, yellowfin croaker, spotfin croaker, ten-pounder and striped bass. To these we must add, for most certainly they are game fish: dolphin, skipjack, halibut, and even Pacific mackerel. The sheepshead also must be included because of his game-ness, but he will not take a troll and is of little food value.

Broadbill, marlin and tuna over 100 lbs. naturally come under the heading of big game, and are covered elsewhere in this volume. The black sea bass, in spite of its tremendous size (it often reaches well over 400 lbs.), comes under the heading of smaller, or more properly, less important game.

Tuna generally make their appearance here in the late spring or early summer, the bluefin coming in from far offshore, and the yellowfin coming up the coast from Mexico. Where the bluefin come from no one actually knows. In many parts of the world tuna under 100 lbs. do not have the appeal that they have in Southern California. Many of our Pacific anglers have caught tuna in the Atlantic. They are unanimous in the opinion that, although scientists make little distinction between the fish of either ocean, there is all the difference in the world in their fighting qualities. Pacific tuna are much tougher, make no mistake about it! This is borne out by the fact that although the record Atlantic tuna on 24 thread line (heavy tackle in the Pacific) was well over 800 lbs., and several have been taken approximating this weight, only two tuna over 200 lbs. have been landed on this tackle off California, although many have been hooked by many of the same experienced anglers over a period of years.

The bluefin are taken almost entirely on the kite as previously described, or occasionally, in the smaller sizes, from live bait boats. The yellowfin, however, readily take a troll and in addition furnish great sport for the live bait fishermen. The lighter tackle specifications which we have outlined do not apply to the larger tuna, fish

approaching 100 lbs. in weight. The speed of their run invariably will break the line in spite of anything which the angler can do. Unfortunately, tuna seasons are unpredictable. In the early days bluefin only were found by Catalina anglers, and 100-pounders were the rule rather than the exception. Different years, however, bring different conditions, and for the past decade 20- to 30-lb. fish have prevailed. At times these fish provide great sport, but they are extremely difficult to take since the kite bait is too large for them, and they will seldom take other trolled lures. The live bait boats get quite a few, but bluefin tuna are wary. It seems strange that yellowfin tuna, which so closely resemble them, act so differently. The yellowfin is the tuna of Mexico, and warm currents coupled with migratory cycles occasionally bring them to our shores. When they do arrive they provide excellent sport, since they will bite readily on almost any lure. They, too, vary in size from year to year, and their coming is later than that of the bluefin, generally in late summer. It is of interest to note that the California record tuna, 251 lbs., taken by Colonel C. P. Moorehouse in 1898, has been classified by some experts as a yellowfin from the mounted specimen which still hangs in the Tuna Club. If so, this fish must have been a stray, since few yellowfin were reported at that time.

The fight of the tuna is spectacular in that it makes a terrific first run. He is not an ocean acrobat, never jumping when hooked, but while feeding he is out of the water most of the time. It is a great sight to watch a large school of tuna working small bait; particularly flying fish, which they often catch in the air several feet above the water.

The albacore usually make their appearance off Southern California in June. They cannot be netted successfully. Great schools of them come north and the tiny commercial jig boats stay with them constantly, so we have little trouble keeping track of their position and surfacing points. Albacore are by all odds the most sought after of the small game fish, not only for their courage, but also as food. They swing into this coast in the vicinity of Guadalupe Island to the south. Where they come from no one knows; their spawning grounds have never been found. That they come from the open ocean is shown by the fact that almost never are they taken more than 200 miles south of the United States; we find them only during the summer season. These fish weigh from 10 lbs. to a very occasional 80 lbs., ordinarily running from 15 to 30. They readily take almost any trolled lure, particularly the feather jig, colour preferences for which are dependent on the mood of the fish and perhaps the angler, too. Their fight is typical of that of the tuna family, a long, fast, sounding first run, followed by a series of shorter runs and circling as the fish comes to gaff. Six-nine and $3/6$ are best adapted to their capture although even lighter tackle occasionally has been tried. Experienced fishermen show a marked preference for $3/6$. Albacore also are one of the most highly prized catches on the live baiters and when they are running it is almost impossible to procure space on these boats. There can be no question that the albacore is the most valuable food fish of this area, as at this writing the canneries are paying well over four hundred dollars a ton for them. Tuna bring considerably less.

Next in importance to the albacore as a game fish comes the yellowtail. This secondary position is caused solely by lack of numbers. Years ago when yellowtail were abundant, this fish was king of them all. Since they are easily taken in nets their numbers have been depleted. The yellowtail makes a dogged, determined fight which, although it lacks the spectacular first run of the albacore, more than makes up for it in the powerful short dashes and changes of direction as it is led to gaff. Originally most yellowtail were caught on salted anchovies or by trolling close to shore near their favoured

kelp beds. Now, however, such fishing is rare in the extreme, and the live bait boats, particularly those which frequent the Coronados off San Diego, account for most of them. The Tuna Club record yellowtail was caught by the late W. W. Simpson of London, England, in 1908. It weighed 60½ lbs. The average for these waters is in the neighbourhood of 20 lbs., though they have been caught up to 80 lbs. off San Diego.

Together with the yellowtail, the white sea bass was one of the early "delight-makers." He is highly desirable for his fine flavour, but most certainly does not equal the yellowtail or albacore as a game fish. Conditions under which sea bass fishing is done are most enticing, especially in moonlight when trolling with a live flying fish as bait. These fish rarely stray far from shore, and the beauty of the coast line, the clearness of the water with its endless changes of blue and its myriads of visible marine life, add to the attractiveness of the setting. A slowly trolled spoon is the best artificial lure, but as with the yellowtail, by far the greatest number are now caught from the live bait boats. These fish are quite common up to 40 lbs. in weight, the California record being 75 lbs. 4 ozs., taken in 1941.

The California barracuda, or "scooter" as he is almost universally known, is a far cry from the often dangerous giant barracuda of other waters. No menace this; his weight almost never exceeds 16 lbs., with a 7 lb. average as high. Surprisingly enough, this barracuda is a fine food fish, being taken commercially in great quantities. The "scooter" is today the fish of the common man, as was the yellowtail in the past. Trolling is usually productive, and patrons of the live bait boats catch hundreds. They do not give a hard fight, even on the lightest tackle, but their length and slimness are deceptive and they look much larger than they actually are. A slowly trolled bone jig, weighted to keep it under the surface when occasion requires, and live bait account for most of those taken. Barracuda have been known to reach these waters as early as February, but this is unusual. They stay until late fall, before returning to Mexican waters.

When trolling in many fishing places, one does not know in advance just what kind of fish will strike one's lure. Different tactics are required for different species and the angler must recognise the type of fish which he has to deal with instantly, or his chances of hooking are minimised. Off California, however, one practically always can choose to troll for a particular variety. There are two exceptions to this rule, two relatively small but gamy fishes which can be counted upon to strike at almost anything and at the most unexpected moments. There are the oceanic bonito, known locally as the skipjack, and the California bonito, its generally larger cousin. They are found both in-shore and off-shore and sometimes become so voracious that even smaller ones have been known to seize a flying fish of 1 lb. or more in weight which was being trolled for tuna. These little warriors invariably put up a fight worthy of the tuna clan. Bonito are generally present at some time during the summer season, but skipjack are undependable, running in cycles during the late summer. Of the two, the bonito is by far the better food fish.

If there is one fish above all others entitled to be called game, it is the dolphin. Few would fail to agree that he is among the most beautiful fish that swim the ocean; as a fighter he is unequalled, his skittering, leaping, flashing runs are unsurpassed, and when his fight is ended, which is not until every spark of life is gone (he will literally flip himself from the boat after being gaffed), he still maintains supremacy as one of the greatest delicacies which the sea has to offer. Dolphin are fish of tropic seas. Their home on this coast is to the south. But when the warm current of Japan swings farther



northward than usual and raises our water temperatures above the normal, the dolphin may be expected and in numbers. The floating patches of off-shore kelp harbour them, two, three or a dozen. Their colours flash; blue, green and gold, yes, and purple, too. They are exceedingly voracious and will strike almost any bait from a flying fish to a piece of white rag. Three-six is the tackle and the angler does not live who revels not in this fishing. Dolphin always appear much larger than they are because of their slimness. Their depth is deceiving and their spectacular fight adds to the illusion.

Among our fish is one quite different from the rest. In the very early days he was considered the greatest game of all; the giant or black sea bass. His size and the lack of modern tackle made him famous. He is truly a bottom fish and if the angler succeeds in raising him he loses his power. The star drag has been his downfall. Still-fishing from an anchored boat fairly close to shore is ordinary procedure, although they are not infrequently caught from some of the longer piers. Live bait boats and barges account for a few. These fish are truly enormous, often going well over 400 lbs., and have been known up to 600. In appearance they closely resemble the black bass of fresh water. Their first run, although slow, is irresistible; they are heavy, ponderous fighters, but when they are raised to the surface, like other bottom fish, their fight is over. They are almost ever present on this coast, though their numbers have been somewhat reduced in spite of the fact that they are not fished for commercially. During recent years 6-9 has been the most favoured tackle for their capture, but with this tackle the fight may be long and arduous.

The sheepshead is a curiosity, with flat, almost human protruding teeth which he uses to crush the shells of various molluscs. The male has a wide scarlet band running completely around his mid-section. When hooked, he displays a stolid determination. He has little if any food value and if it were not for his vicious appearance and brilliant colour few anglers would be interested in his capture. A 20-pounder is uncommon.

Many varieties of still smaller scrappers are found close to the kelp beds of these islands and the mainland. The rock bass and the kelp or calico bass afford fine sport from the live bait boats and by trolling. Of course these fish are small, but they are delicious, and an interesting sidelight is that they can be caught with a casting plug on fresh water bass tackle.

One seldom thinks of the halibut as a game fish, however in Southern California many are taken on rod and reel. Some, surprisingly enough, are caught by trolling slowly, close to the beaches on the leeward side of the islands. Live bait fishing on the bottom produces the best results. They run to 45 lbs. in this locality, but in Alaska reach astounding size and put up a tremendous fight on rod and reel.

PART V

Northern Waters

The great Bay of Monterey just south of San Francisco's Golden Gate is notable for the fact that it is the meeting place of the northern and the semi-tropic fish. The northern fish do not generally stray farther south than this point, and while many of the semi-tropic fish do not migrate so far north, nevertheless some of them do; ordinarily

they meet at Monterey. There are exceptional years when the southern migrations go much farther north, as is evident from the fact that albacore, bonito, small tuna and even marlin have been found almost to the Canadian border. Their presence is so infrequent or they are so far off-shore that it is only by the remotest chance that the sportsman finds them, and their interest to the average fisherman is negligible. In the northern Pacific area from Alaska to San Francisco, salmon is king, with the steelhead second in importance, and nowhere in the world is to be found finer fishing for these varieties. These fish are being covered elsewhere in this volume. With the exception of the great halibut of Alaska there is no other native salt water game of importance.

In San Francisco Bay and the rivers which empty into it a surprise awaits us; the striped bass abounds. Peculiar as it may seem, this great fish is not indigenous to the Pacific, but was imported from the East Coast in the late 1870's to be planted in the Bay area. From here they have spread for perhaps one hundred miles in either direction along the coast. The beaches and estuaries of the rivers from the Russian River somewhat north of San Francisco to Monterey Bay provide fair surf fishing for striped bass during the summer and many fine fish are landed each year. Occasionally these fish may be found as far north as the Columbia River, and infrequently they are taken as far south as San Diego in California. There have been subsequent plantings in the region around Coos Bay, Oregon, and in one or two of the smaller bays of Southern California. They have done relatively well at Coos Bay, but of the plantings the original was by all odds the most successful.

It is probable that many of the striped bass in the San Francisco Bay area never reach the open sea. Anglers familiar with these fish on the Atlantic Coast will wonder that surf casting is not the ordinary way to fish for them. The reason, of course, is that they thrive in the Bay's brackish waters which teem with shrimp life and miss the squid of the open ocean which is much more plentiful in the Atlantic. During most of the year these bass remain in the Bay or close to it, but each spring they migrate in great numbers up the Sacramento and San Joaquin Rivers and their tributaries. In the Sacramento, striped bass are found as far as 100 miles up the river, and it is during this migration period that the most interesting fishing generally occurs. The great majority of striped bass anglers are still-fishermen who use crabs, clams, shrimp or live minnows for their bait, and most of this fishing is done in the brackish waters from boats at anchor, from piers and docks and from the shore. When hooked these fish put up a typical bass fight, usually one fairly long, hard run followed by bulldog tactics. Occasionally they will clear the water and when they have been brought to gaff or net, they have fought themselves out. As is generally true of the bass family their fight is not as fast nor as spectacular as that of the pelagic ocean fishes. Trolling or casting in the mouths of the rivers are the more interesting methods of taking the stripers of this region. When the bass begin to migrate, they move up the rivers very slowly, staying for a few days within the area actually influenced by the tides and where the water is still slightly brackish. The migrations of the larger fish are almost always immediately preceded by tremendous schools of smaller bass, from fingerlings up to 10 ins. in length, and, as the striper is cannibalistic, it seems as though the smaller fish are herded along in the vanguard to furnish food for each new spawning journey. Many sorts of plugs, artificial minnows and spoons are used in trolling for these fish. One of the favourites is the red-headed white pikey minnow. This bait is in two pieces, jointed in the middle, with three gangs of treble hooks. It has a very active motion in the water. For a number of

years it was customary to attach, somewhat ahead of this lure, a very small feather jig on a dropper leader. This practice is now illegal as only one lure is permitted. The larger bass tend to lead the school, and the more skilled will soon find out how fast this school is travelling and manage to keep their baits among these leaders. During large migrations the daily bag limit of five can be taken with each fish weighing close to 35 lbs. Stripers over 40 lbs. are exceptional. Similar migrations to the one described, but of smaller volume, take place in the San Joaquin River, and the larger branches of the Sacramento such as the Mokelumne frequently have fine runs.

On entering the Sacramento River there are a number of sloughs which are designated by the number of miles which they are from the bay. Our favourite is Eight Mile Slough. Rio Vista often is an excellent fishing spot, being just about the point where the tides ordinarily cease to affect the river. Of course, since the fish migrate upstream, every place is good at one time or another, and boats can be rented at numerous little landings.

Three-six tackle is ideal unless the fishing is done from piers or from boats anchored closely together; then 6-9 is preferable in order to avoid fouling pilings and anchor lines.

PART VI

A Cruise to Baja California

The fishing which we have so far described has been done within easy reach of large centres of population, where boats and equipment could be procured locally, and where a week-end sufficed. As our subject turns to Mexican waters an entirely different situation confronts us and we must choose a different season to avoid the late summer hurricanes or "chubascos" which occur not too far south of the United States.

The magnificent fishing waters along the west coast of Mexico's Baja California can scarcely be visited except from a fishing boat sufficiently large to be self-sustaining. The points at which supplies and fuel can be procured are infrequent and proper fishing launches and suitable accommodations do not exist. Since a cruise is necessary we invite you to accompany us in imagination.

Our boat is a 65-footer; Captain George a competent fishing guide. Our supplies are adequate. We trust that by so carefully selecting our companions they will prove congenial. We have our tourists' cards, our hunting and fishing licences and our ship's papers are in order. We are cleared for La Paz, a small, seldom-visited town just around Cape San Lucas and over a 100 miles up into the Gulf of California.

Passing Point Loma on the 1st of March as we leave the lovely harbour of San Diego, the realisation bursts upon us that a 1,000 miles of almost untouched fishing territory lies ahead. There will be three weeks of great fishing before we reach our destination, from which most of our party will return by air.

Originally our plans included a visit to Guadalupe Island, not only for the fishing and its beautiful almost landlocked anchorage, but especially to see its herds of sea-elephants which are more abundant there than at any other known rookery. Unfortunately,

Guadalupe lies some 180 miles offshore, and you, our guests, cannot afford the time, so our first stop will be Turtle Bay, about 300 miles to the south.

We are cruising at 10 knots and should reach there in time for a little fishing tomorrow afternoon. Our skipper says that he first visited Turtle Bay in 1908, and that the fishing then was even better than he expects it to be now.

We are passing Ensenada, an attractive Mexican town, and the mid-morning's sun has cleared the early mist. The weather is superb. Our course is south-east by south and the gentle north-westerly daintily ripples the surface, seeming to help on their way the long, shallow ground swells which are urging us to our destination. On this trip southward these swells are our friends; how different it will be on the return journey.

We are "shaking down," finding our places and our light duties. Our meagre crew can scarcely be expected to do everything, so we are assuming some of the watches. When not so occupied we busy ourselves with our tackle, fashioning leaders, replacing old lines with new, oiling reels and sharpening hooks. After cocktails and a good dinner we laze on the afterdeck, gazing dreamily at the brilliant phosphorescence of our wake. It has been a long day, and one by one we drift to our bunks.

Awakened in the morning by Emmett, our incomparable Filipino steward, borrowed for the occasion from the Tuna Club, we arrive "topside" just in time to see the handline, which we have been trolling, straighten and pull itself abeam. A large bonito in its savage rush has foul hooked and has become a living paravane. Our first fish! We shall see more of these barred scrappers in the days to come and there will be fish chipine for supper. But now it is breakfast, and what a breakfast; the sea has renewed our appetites. Captain George says that the first man to see Cedros Island will have the best fishing luck, so we all crowd forward striving to pick it out through the blue haze of distance. But the Captain's eyes are more used to the sea and he enjoys his little joke. It is our first landfall, the Cedros which Scammon glorifies in his treatise on whaling. It is here that we find the dividing point between the tropical and the semi-tropical fish—the same type of dividing point as Monterey Bay. From here southward we will begin to encounter new species, though for a while we will land many of our old friends. The yellowtail and the white sea bass will become more numerous and larger. We will find no albacore nor bluefin tuna; their places will be taken by the black skipjack and the yellowfin tuna. Were our trip more leisurely we would tarry at Cedros, but Turtle Bay beckons and offers as inducement the comfort of its landlocked anchorage and equally good sport. Our ground tackle scarcely touches bottom before the fishing boats are launched; two of us and a boatman in each. Our rods are bending in Mexico for the first time. In less than an hour we have landed yellowtail and white sea bass of which Dr Holder might well have been proud. They are so plentiful that nearly all are released, as one or two will do for the galley. Wilson spoons are our bait and 6/9 our tackle. One of our party to whom size is impressive is gloating over the 300-odd-pound giant sea bass which hangs from the boom. Captain George reminds him that Conn and Farnsworth landed fifteen of them here in one day nearly forty years ago. But even with this magnificent fishing we cannot loiter, as too much lies ahead. A visit ashore to the old abalone cannery provides us the means for an abalone chowder—the best in the world.

Turtle Bay has more than met our expectations, but the Captain paints such rosy pictures of Magdalena Bay and new varieties of fish that we willingly weigh anchor after lunch so as to arrive there by noon tomorrow.

It is the morning of 4th March. There is little to do today except keep an eye on the handlines and watch the scattered commercial boats on their way north laden with yellow-fin tuna. Fortunately they are not interested in the varieties which we are searching. The ocean is flat calm and the ground swells have diminished. A new form of bird life is making its appearance, the booby bird of the tropics. We are catching an occasional black skipjack which is our first new variety, and it is quite a chore to handline them against the speed of the boat.

A shout from the bridge, and we all look to starboard. Two marlin are tailing down the swell. Those who want marlin will have ample opportunity at Cape San Lucas. We sight a number of hammerhead sharks and pass schools of porpoise which play at our bow. Blackfish and bottlenose whales are blowing at a slight distance and we have just seen our first green sea turtle, a small one of about 60 lbs. Our course is now close to shore and the entrance to Magdalena Bay is in sight.

Magdalena Bay ranks with the finest natural harbours in the world. It has been used by the United States Navy for many years for manœuvres. Its narrow entrance of about a mile and a quarter in width opens into a large almost inland sea, some 100 miles in length and over 20 miles in width in places. Its deep water area measures about 150 square miles. The country hereabouts is bleak and barren, having almost no vegetation save the cactus, sage, manzinita, and cholla of the desert. While the flora is limited the fauna is abundant. Myriads of quail, ducks, plover, jacksnipe, geese and other waterfowl are present, and we shall no doubt avail ourselves of the privilege of enhancing our larder. In the extreme north end of this great bay is the tiny village at Man-of-War Cove. Its radio station and its custom-house are the reasons for its being. We are now riding at anchor awaiting the customs inspector who, according to Mexican habit, will arrive after the siesta hour. Our small boats have been launched and are swinging lazily from the boat boom, awaiting official sanction for their use. At last our patience is rewarded and a couple of hours' fishing has netted us four new species. We have had our first experience with the ever present "tackle busting" cabrilla which we will find a mixed blessing for the rest of our cruise. These cabrilla are similar to the groupers of the Atlantic and there are five or six varieties. They run in size from 5 lbs. to 150, and they will strike at almost any conceivable lure at almost any place near shore, particularly over rocky bottoms. At times they bite so incessantly as to become a pest, interfering with our fishing for other varieties. Most of our difficulty with these lusty fighters is due to their habit of making unstoppable rushes for the nearest rock, under or behind which they station themselves, and a cut line frequently results. With long leaders of 6 ft. or more, we were able to pull many from their hiding places. Ten-fifteen tackle has been desirable for the first time. Our largest specimen is hanging from the boom and weighs 83 lbs. It is of the pinto or spotted variety. A number of beautiful sierra mackerel, five yellowtail in the neighbourhood of 35 lbs. each, another newcomer, the ladyfish (also called ten-pounder or big-eyed scad) have been landed. The latter, while small, are silvery acrobats and put on a spectacular exhibition of jumping; not one of three hooked was landed, although 3/6 tackle proved somewhat too heavy for them. Great schools of sardines are surfacing, pelicans are divebombing for their supper, and cormorants in great numbers are joining in the feast. A pair of frigate birds wheel into view, the first we have sighted. One of our party has just returned from surf fishing. Two large corbina, a beautiful Chinese croaker and three spotfin were all that he kept. Another member is arriving with a mixed bag of game birds. Captain George says that

Santa Maria Bay, which is not far north of the entrance to this harbour, is a fine fishing spot, but that the stretch between Cape San Lucas and Ceralbo Island will afford even better fishing and many more kinds, so we have elected to proceed directly to the Cape. Our engineer tells us that some slight repairs to the diesel will delay our departure until late evening.

We have been under way for an hour, enjoying a close game of bridge in the cabin. Suddenly our boat heels hard to port; lurches, steadies, then lurches again. Instantly we reach the deck to find ourselves in quite a sloppy sea. The perfect protection of Magdalena has fooled us, and it is blowing hard outside. This is our first touch of weather, but Captain George is not perturbed. He says that the storm is a local one, but it is sufficiently severe for our tastes. The wind is increasing, an unusual occurrence here after sundown. Great surges chase and threaten us, then hurl us forward. They pass under and beyond us, leaving us in deep valleys with mountains in the form of other white capped seas overtaking us.

Morning finds the wind gone but the swell still running. During the night we lost both of our handlines, probably to big Allison tunas, and we have just replaced them. From now on they will require constant attention. Because of the blow our course has been well offshore, and the coastline of the peninsula shows dimly some 20 miles abeam. There is a rush for the handlines, dolphin on both. Our speed is too great for them to do much but skitter and plane along the surface as we haul them in, but they are full of fight when they reach the deck. Their gorgeous colours flash and change, silver to yellow, yellow to blue, all shades and all hues, flickering and fading slowly as life ebbs. Our baits scarcely are back in the water when there is a tremendous strike. The first of our party to reach the line pulls lustily, gaining inches, not feet. In spite of the humour of his discomfort, our excitement and curiosity compel us to his aid, but the fear of pulling the hook out or breaking the line makes us cautious. The skipper has seen our predicament and the boat is already slowing as we battle this long slashing silver streak. When this fish is landed, we are delighted—we have had the great fortune of hooking a wahoo well off his beaten path. It is a pity that one of us could not have had the pleasure of his capture on rod and reel, as the wahoo is a splendid fighter. This specimen weighs 62 lbs. and is 5 ft. 7 ins. long. Our captain informs us they are plentiful at the Clarion Island, over 600 miles to the south. By lunch time we have had a large number of strikes, principally from sierra mackerel and dolphin, although a needlefish gave us an exhibition of his leaping ability, vainly attempting to take our starboard feather jig. His long, bony snout made it impossible to hook him, and finally he tired of the chase. Our handlines have been used with barbless hooks, otherwise the slaughter would have been wanton. We keep only new types and enough for food. There have been more sea turtles today. Emmett promises delicious steaks and turtle soup when we reach the Cape.

It is two o'clock; we have just rounded Cape Falso (false cape), and Cape San Lucas, the very tip of the great peninsula of Lower California, is in view. We are close inshore now, skirting beautiful wide beaches, whose sands do not seem as white as we remembered them, but which already are beckoning the surf fishermen among us. Even the over-worked handlines are forgotten in our eagerness to see the place which will be our home for this long anticipated week.

Among the truly great fishing places of the world, Cape San Lucas ranks high. Nearly every type of fish and fishing will be found, but even our captain has no accurate

idea of just what we will catch, for the Cape is unusual. It is a stopping place on the journeys of all the pelagic fish, the wanderers of the ocean, as well as the home, both temporary and permanent, of other kinds. Who can tell what we will find? Perhaps great schools of Allison tuna will crowd most other fish away; perhaps marlin and sailfish will be in command. We know that we will find fishing beyond our dreams, but only the morrow will show what it will be.

We round the bold, high rocks of Baja California's "Land's End," with its natural arch called the "Hole in the Wall," close abeam, and turn into the bay. It is a splendid circular roadstead, open only to the south-east, with a long, curving beach behind which are sand dunes hiding the village from view. It is just within the tropics; but this would not be evident from the vegetation which differs little from that which we have been seeing. The water here is very clear and blue, and we note the absence of kelp which we have not seen since we left Turtle Bay, but here seaweed also is lacking.

During our stop at San Lucas we will use the two launches for inshore fishing. Our offshore game will be taken from the big boat. We are no longer hurried; our trip has tired us, so we are taking it easy this afternoon. Some are writing letters and several have gone ashore with the captain. They will stop at the cannery to check with the commercial fishermen. This village is tiny, but San Jose del Cabo, some 20 miles farther up the shore, is a good sized town. As we lounge on deck we are struck by the change in bird life. A few gulls and terns are present, but there are no shearwater. The boobies and the man-o'-war or Frigate birds are everywhere and great strings of white pelicans effortlessly follow their leaders. Early to bed; our first strenuous fishing day lies ahead.

In the morning we decide to split up, the launches fishing along the beaches and rocks, while the rest of us are proceeding toward the Gorda Bank, trolling as we go. It is a glassy day and the sun is bright even this early in the morning. We will have to watch out for sunburn. There are a number of sharks on the surface, but the captain tells us that in the Gulf they almost never attack the fish which are hooked. In this water we can spot fish at unusual distances and are surprised at the great number of manta rays. These huge batlike creatures flap along just under the surface and constantly clear the water to return with a resounding whack. Needlefish are all over the place, chasing and being chased. Sierra mackerel are ravenous, sometimes biting our swivels and cutting the line. Two hard strikes occur simultaneously. We sense something new. It requires dexterity to keep the lines from crossing; we were right—two beautiful crevalle.

Off our bow the birds are working. The captain shouts, "Big Tuna." Before we can avoid the school two reels are screaming and smoking, and the lines, almost stripped from them, break near the leaders. Our tackle is not meant for fish like these; 24 thread-line is needed. Again and again the dolphin electrify us with their flashing turns and somersaults, punctuating our other catches as if constantly to remind us of their kaleidoscopic beauty.

As we approach the Gorda Bank the action of the birds orients a school of red snappers so closely packed that the water takes on a reddish tinge above them. One pass through this school and all baits instantly are taken. These snappers are different from those of the Atlantic. We have seen a number of marlin jumping in the distance. "Look out for him," yells the captain. And in one of those rare "express train" strikes a good sized marlin has hooked himself on one of the feathers. He is never stopped; our boat is too large for light tackle, it cannot be turned quickly enough to meet this situation, and our angler ruefully reels in his broken line.

Literally too tired to fish on the way home, we arrive to find that our small boats have had an equally good day with the inshore varieties. Tomorrow we shall change places with them. It has been wonderful fishing, fifteen different species in our combined catch. All uninjured fish were released and the peons were pleased with those we brought in. It is almost chilly now that the sun has set, a perfect moment for a highball.

It is 8th March, the start of our second week, and our turn with the launches. There is a slight westerly breeze today, but since we are fishing the lee it will not bother us. The launches will keep in sight of each other for safety's sake. We have drawn the lead boat and the captain has agreed to guide for us. We rig our tackle with Wilson spoons as he heads for the "Hole in the Wall," and have reached it by the time our spoons are working in the wake. Our first catches are a needlefish and a frigate mackerel, hooked simultaneously. They would have been fun on 3/6 tackle, but this is the home of cabrilla and there are rocks, so 3/6 is too light. As we round the point we have a smashing strike. The captain heads to sea and the angler strives to turn his fish away from shore, to no avail. It has reached the rocks and is gone. On the second turn this scene is repeated, and we decide to troll a little farther out. The third try is successful and the cause of our trouble becomes apparent. After a stiff fight of twenty minutes an 80-lb. turel is skilfully gaffed by the captain. This is what we have been looking for. We catch and release several more during the next hour, gaffing them in the point of the lower jaw in such a manner as to do no permanent harm. These turel are like the amberjack of the Atlantic and resemble the yellowtail both in appearance and in their staunch fighting qualities.

Turning back across the bay we land a Mexican bonito, a scrappy little customer with brilliant colouring—the first we have encountered. Approaching the shore, we find ourselves over a long stretch of sandy bottom and here a rare treat awaits us. A roosterfish rushes one of the lures, instantly making himself known by his initial spectacular leap. Here is another acrobat rivalling the dolphin in his actions but flashing silver instead of gold. His long, comblike dorsal gives him his name. This is indeed a magnificent fish, iridescent silver predominates, intensified by two curving black stripes which start 'neath his dorsal and end at his tail. At the end of the bay we find rocks in relatively shallow water. Here we know only too well what to expect. Cabrilla, and lots of them! Smash! Bang! We are hooked double, and it is double trouble too. We reach for our 10/15 tackle and tie on longer leaders. Again we hook double but this time we are prepared; we are rewarded with one golden cabrilla of 18 lbs. and a 40-odd pound cabrilla bacallada. The golden one we keep.

It is well past noon and our companions in the other launch come alongside. We eat our lunches together as we compare notes. We rate our roosterfish the prize catch. They did catch a cabrilla colorado, but our turel was larger than theirs. It is agreed that we have caught enough fish, and our two-hour journey homeward is timed nicely as the large boat is on her way in. As she approaches we see that those aboard have stolen a march on us, using 24-thread line and 16 oz. tips. They would otherwise not be flying the tuna and marlin flags. It becomes apparent that some people cannot always restrict themselves to "delight-makers."

At the end of a week of this marvellous fishing, a week which has passed entirely too quickly, we cruise leisurely up the Gulf to Point Arena, passing San Jose del Cabo, since it is a port of entry and our papers call for La Paz. It is late in the day when we reach our anchorage just inside the point. All have decided to fish with 3/6 in the morning



COMMON SUNFISH or PUMPKINSEED (*EUPOMOTIS GIBBOSUS*)
protecting eggs from BLACK BULLHEAD or CATFISH (*AMEIURUS MELAS*)
AMERICA

in the hope of catching roosterfish on this delicate tackle. In the evening we amuse ourselves with various and sundry small fry on light bass rods. These little fellows are of endless variety, most of them unclassifiable by anyone on board.

The morning's fishing is thoroughly satisfactory. We are fortunate in finding a long, sandy beach off which roosterfish are relatively plentiful. With such light tackle they are given every opportunity to display their antics, which never fail to enchant us. This was our principal purpose in stopping here and now that our desires have been gratified, we are on our way with the *Island of Ceralbo* as our goal.

Ceralbo is the southernmost island inside the Gulf. It is the first in a long chain of islands which extends along the peninsula side and forms with it what may have been in ages past a channel of the Colorado River. The peninsula rises in sheer cliffs of great height along most of this stretch. *Ceralbo*, like the other islands, resembles our own *Catalina*. Here we find a lee sheltered from the prevailing north-westerly winds. The water is unusually clear and blue; it is a grand place to fish and most varieties are plentiful. Small yellowfin tuna, with their wicked first runs, give us great sport and while we catch many kinds of fish only two are new to us. One is the rainbow yellowtail. His fight is much like that of his cousins with whom we are now so familiar. His head is smaller and his name was chosen from his vivid blue and yellow horizontal stripes. The second is the Pacific sailfish. These we take with cut bait on 6/9 tackle. During our days at *Ceralbo* we catch several marlin as well.

Heading past *Espiritu Santo* Island we are greeted by the most inspiring sunset of the trip. The westerly winds whip the dust from the peninsula high in the air, and this phenomenon is responsible for holding the glorious colours of the sun's last rays, imparting to them a permanence which makes them linger and spread in fiery magnificence to every horizon. As we turn southward into the deep bay of *La Paz*, it has for us an especial significance, the realization that our cruise is drawing to a close. We hope that you enjoyed it as much as we did. "Tight lines" wherever you fish.

PART VII

The Gulf of California to Panama

It should be borne in mind that the cruise which we have just described is only one of many which could be arranged in the great reaches between the Gulf of California and Panama, and which could well include a number of offshore island groups of surpassing interest such as the *Tres Marias*, *Clarion* Islands and the *Galapagos* group. Most of these trips would be far more difficult to plan, and would require more time. Fortunately there are a few places along these shores which can be fished from good hotels and on local boats; some of them even offer charter cruises to not too distant waters. As the natives of these countries realise more the value of sport fishing, more small ports are providing boats and guides. At present these spots are rather few and far between, but those which do exist are easily accessible by train, by steamer or by airplane, and offer fishing beyond anything that the average angler has ever known. All of the fishes which we found at *Cape San Lucas* are plentiful along this entire shoreline, and there is little to recommend one place more highly than another from the standpoint of fishing. We are describing the most prominent.

La Paz

It is only recently that sport fishing boats have been available at La Paz, although, as we learned on our cruise, it has been a favourite spot for yacht-borne fishermen for many years. It can be reached only by airplane, and for this reason we think that it will remain unspoiled longer than most of the others. Its people are most hospitable and prices are reasonable. There is a charming small hotel on a palm-lined beach. Friends of ours have just returned, reporting a catch which included a 55-lb. bull dolphin, marlin, sailfish, roosterfish, turel and many others. They told us that the new fishing boats were quite adequate and that the guides, although somewhat inexperienced, were accommodating and eager to learn. The season runs from the last of October to the first of July, when tropical hurricanes may be expected. It is our guess that La Paz one day will be rated among the greatest fishing resorts of the world.

Guaymas

Guaymas, situated halfway up the gulf on the eastern shore, has been a popular fishing centre since 1936, when its luxurious Playa de Cortés Hotel was built by the Southern Pacific Railroad of Mexico. It has had the greatest publicity of any resort on Mexico's west coast and one can count on meeting there many experienced anglers from all parts of the world. It is easily reached by every means of transportation, and offers social life as well as fishing. Although primarily noted for marlin and sailfish, the other tropical varieties are plentiful, and it is well within the migratory lane of the totuava, that large Mexican white sea bass which in the wintertime often runs well over 100 lbs. For those who like their ease it is probably the best, although sometimes long runs to San Pedro Island or elsewhere are necessary to find the larger fish. The boats are excellent and most of the guides experienced. June is the best month.

Mazatlan

On the mainland of the west coast of Mexico, just opposite Cape San Lucas, lies the port of Mazatlan, Mexico's largest Pacific seaport. It is in the heart of the finest fishing area, but until recently local boats were not available, and most of the fishing done there was of a spasmodic nature. In view of the fact that facilities have not been easily procurable, many authorities have been inclined to sell Mazatlan slightly short as a fishing resort. Nevertheless, great fishing is to be had, and it is only a question of time before good boats and boatmen will be available. Mazatlan does not offer the sheltered waters of some areas, and it often requires a long trip to locate the best fishing. Mazatlan is a modern city in every sense, and excellent hotel accommodations are to be found. For specialized fishing we would be inclined to recommend Guaymas or Acapulco over Mazatlan, but only because they cater more for the angler.

Acapulco

During recent years, the attractive resort town of Acapulco has become one of the leading fishing spots of the world. This quaint village, the watering place of Mexico City, boasts some of the finest angling to be found. Its hotels are unsurpassed, and its boats rank among the best. Sailfish and marlin predominate, and its surf fishing can scarcely be equalled. Other varieties are to be had almost for the asking, and the wahoo, one of the truly spectacular game fish of the sea, is plentiful throughout a large part of the season. Each year there is a sailfish tournament held under rigid rules,

the winner receiving highly coveted trophies. Acapulco is truly tropical, the season therefore being somewhat more restricted than in other areas. December and January are very good months. It is open sea, which distinguishes it somewhat from the Gulf ports, sheltered as they are from the long swells of the Pacific, but most of the fishing is done between the points sheltering the bay.

San Jose, Guatemala

As one goes farther south than Acapulco the weather and vegetation become truly tropical. There is no diminution in the game life of these waters and the same fish are abundant. San Jose is the seaport of Guatemala City, the capital of the country, which is situated on a high plateau well away from the coast. It is now a popular tourist centre and promises to become more so. While little has been done to entice the fisherman, it is certain that within a very short while this port will have its angling devotees.

Balboa, Panama

Panama means abundance of fish and it certainly lives up to its name. Amberjack, dolphin, wahoo, bonito, roosterfish, in fact, all the tropical fish abound. It is the home of the noted Pacific Sailfish Club. Of course, at Balboa one may select the best accommodations, and there are several available guides and charter boats. The heat is its only drawback. Much of the fishing in this area is done at the Perlas Islands, which lie some 25 miles south of Balboa.

SPEARFISH OF THE WORLD

By S. KIP FARRINGTON, JR.

You are running out of the Humboldt Current, which is about 20 miles wide off Tocopilla, Chile. The colour of the water is turning from dark brown to a beautiful azure blue, with a temperature of about 66 degrees to one probably 4 or 5 degrees colder in the north-bound current that starts in the Antarctic. It is a beautiful day; in fact, in the north of Chile it only rains once or twice a year, and the water is almost always very calm. There is never fog. Looking inshore you see the Coast Range of the Andes with the highest mountains of either continent running into the Pacific. They average a bit over 5,000 ft. Beyond, with an altitude of 9,000 to 12,000 ft., runs a secondary range of mountains, and in the far distance, more than 125 miles away, the snow-capped peaks of the high Cordillera in Bolivia gleam in the sunlight. A perfect background for the perfect fishing you are about to encounter, with plenty of available bait to tackle the broadbill swordfish which are found here in larger sizes than anywhere else, as well as the gorgeous striped marlin, the first of the five varieties of spearfish that we will cover in this chapter.

Striped Marlin

As found off Tocopilla, the striped marlin is, in my opinion, the world's most beautiful fish. I do not mean to imply that they are not also beautiful off Catalina, Mexico, and New Zealand; rather, my reason for making this statement is that they are in such wonderful condition off Chile and run to larger size than they do anywhere else in the world.

In Chilean waters they average about 325 lbs; off New Zealand about 260; off Catalina about 220, and off Guaymas, Mexico, about 175 lbs. The largest taken off Tocopilla was caught by George Garey and weighed 483 lbs. This was the second largest striped marlin ever boated, the world's record, 692 lbs., having been made off Balboa, California, and it certainly must have been a most unusual fish. It seems strange that no one has ever taken a striped marlin between these weights.

The baits used for marlin off Tocopilla are strips of the bellies of Oceanic bonitos, and the hooks are 9/0 or 10/0. They are so easy to hook down there that Captain Bill Hatch remarked to me on his return that it was like feeding a dolphin. The tackle at the very heaviest should be 24-thread with a 16-oz. tip. A 15-thread line and a 10-oz. tip is about the proper size for the experienced angler, but he can also catch them on 9-thread line with a 6-oz. tip; on the other hand, they are so heavy for this size tackle off Tocopilla that a lot of time will be wasted in trying to catch them on it. The leader need be no longer than 15 ft., and for cable I prefer the light weight which tests no heavier than 250 lbs.

Most of the marlin off Tocopilla are seen tailing, and it is then that the baits should be presented. Michael Lerner and I never troll in these waters; if we want to catch one, we simply stop. Trolling baits naturally slows you down, and you don't want to waste time when you have swordfishing to do. Personally, while I know you can raise striped marlin in those waters, I believe that with so many of them there you have just as good a chance of finding one on the surface as of raising one to your bait. It is very hard for the average angler to pass them up, but the swordfish angler must remember that stopping to bait, fight, and catch a marlin means also that he is wasting that much time when he might be sighting and perhaps getting a swordfish. I have seen twenty-two tailing striped marlin in a day's fishing off Tocopilla without stopping for a single one—and believe it or not, Mike Lerner has seen fifty-one in a day without being seduced from his quest for broadbill. After you have caught a few of these beautiful creatures you really have no desire to take any more, except possibly on 6- or 9-thread.

To show you the kind of catches of striped marlin that can be made on these grounds when an angler is really after them, just take a glance at what Dr Leon Storz accomplished on his first day there on 15th March, 1941. He left the mole at half-past eight, got in the proper water around eleven o'clock, and by two o'clock he had boated six striped marlin and lost two more; after that there was ample time for each of his boat crew to catch a fish. In six days' fishing he caught eighteen striped marlin.

Another example: In twelve days' fishing at the end of February, 1941, Mr and Mrs William Phelps, of New York, caught nineteen of these gamesters. Still another: Mr and Mrs Lynde Selden, of New York, fished two days—30th April and 1st May—and, though they were primarily interested in swordfish, Mr Selden caught a 359-lb. marlin and Mrs Selden a 271-pounder; Mr Selden also caught a mako and hooked and fought two broadbill swordfish before losing them. Where else in the world could a person stop over for two days and get fishing to compare with that?

Mike Lerner caught twenty-five striped marlin during his stay in 1940, and the number could just as easily have been a hundred and twenty-five. In 1939 I baited six striped marlin, got strikes from all of them, and caught them all; the smallest weighed 210 lbs. and at that time was the smallest ever taken off Tocopilla. For more than a year I had the honour of having caught both the smallest swordfish and the smallest marlin ever taken there—but one day George Garey came in with one that weighed in the 190's and took the record away from me!

After catching my six marlin in a row I went out with Mr Toker one day and watched him catch all three that he had strikes from, while on the same day Mrs Farrington was catching a 300-pounder—the first marlin ever taken by a woman off Chile, in fact, off all of South America. A few days later I was with her when she caught another pair, which made it eleven marlin baited, eleven strikes, eleven hooked and caught, for Toker, my wife, and myself. This shows how easy they are to hook in that fine blue water.

The average time for the fish on 24-thread is from twenty to forty minutes, although many of them, of course, are taken a great deal more quickly. If 39-thread were used, they could be caught in ten or fifteen minutes apiece, which is much too fast for real sport. I caught one of mine on a small feather with a No. 8 piano-wire leader while trolling for albacore one day; he weighed 271 lbs., the largest fish I have ever caught on a feather lure. I was using an old O'Shaughnessy hook, and why it didn't straighten out I will never know.

Joe Peeler had the same thing happen to him the following year while fishing for

albacore, but he was using only 9-thread line with only a 4-ft. No. 8 piano-wire leader. But Joe, who is one of the finest light-tackle anglers in the world, didn't let that bother him any more than he let the very rough weather interfere. He got the fish, a 210-pounder, and the first marlin ever taken on 9-thread anywhere off South America; only two others have since been taken, both by myself, in 1941. Peeler had to fight the fish until it was stone dead and on its side. He dared not let the guide take the tiny leader at the boat, so they tail-roped the fish without touching the leader. It was well they didn't, for the guide broke the leader with his bare hand and the hook dropped out as soon as the gaff went home.

The ladies' world's record for striped marlin was taken off Tocopilla by Mrs Michael Lerner, and her fish weighed 403 lbs. W. E. S. Tucker, the great English angler who pioneered these grounds and who holds the swordfish record with an 860-pounder, set up the 15-thread record with a 402-pounder. The writer holds the 9-thread record with a 425-pounder.

Striped marlin have been caught as far up the Chilean coast as Arica, the most northerly port in that wonderful country which is to me the greatest sporting playground in the world. Two have been picked up off Cabo Blanco (near Talara), Peru, by Hans Hinrichs, and two or three off Salinas, Ecuador, by Hope Norton, where more will probably be found when the waters are opened up. An occasional one has been raised by fishermen fishing well offshore of the Perlas Islands, Panama, where many black marlin are found as they are off Salinas. But outside of one or two caught in the Cocos Islands, Acapuico, Mexico, is the first place they have been taken in any numbers. And even there, they are not very frequent. The "silver marlin," for some reason, appear to be most generally caught. What this "silver marlin" really is, is still under scientific investigation.

Cape San Lucas, Mexico, at the tip end of Southern California, is where the gold rush really begins, and these fine marlin are very plentiful from November to April. Anglers fish the Cape base at La Paz, but you have to bring your fish boats and should have a large boat to live on as accommodations ashore are extremely meagre. Some anglers try to sail over from Mazatlan, but that is a long, hard trip.

It is at Cape San Lucas, in March of each year, that tremendous schools of hungry striped marlin enter the Gulf of California and start migrating to the north. This amazing procession of fish is probably the greatest of any on the Pacific Coast of North America and is comparable to the tuna run on the East coast up the Gulf Stream in May. The leaders arrive off Guaymas early in April, and by the end of that month the waters off that famous old Mexican fishing port are literally alive with these beautiful game fish. They evidently swim some 75 or 100 miles north of Guaymas and then return to congregate around San Pedro Island; consequently they are almost always there, swimming in both directions, from April to October.

The island is 4 miles offshore and lies 20 miles north of Guaymas, which is the headquarters for the anglers who fish these waters. While a few marlin are taken from the waters just south of the Guaymas—the main grounds for the Pacific sailfish, which also make their appearance in quantities in May—most of the marlin fishing is around San Pedro Island, a rock jutting 1,100 ft. in the air out of the Gulf of California. Many marlin are hooked within a 100 feet of its rocky shores.

San Pedro has become renowned to the fishing fraternity; but yet its only inhabitants are sea lions, pelicans, cormorants, and gannets. I have never been anywhere where

there have been as many pelicans, and they are constantly flying in a formation resembling a V with a shortened side, three or four hundred in one line and thirty or forty in the other. With perfect precision they follow their leader and imitate him exactly as he planes down to the water or pushes ahead with a rapid beat of his powerful wings. Fascinating birds to watch, they are to me almost as picturesque as Canadian geese.

The striped marlin taken off Guaymas are very thin and small, the average fish weighing from 170 to 190 lbs., although a larger one is caught occasionally. They are in very poor shape, many of them being full of worms, while others have worms protruding from them. While there seem to be plenty of fish for them to feed on in those waters, the majority that we opened up were practically empty. A great many of them carry remoras, or suckerfish, and this accounts for their constant jumping as they endeavour to rid themselves of the annoying parasites. These marlin are also covered with lice, and, as I have said before, this is a natural condition for marlin found in quantities. Numbers of them are battle-scarred or have broken-off bills, mute evidence of the fierce fighting that goes on among them. Possibly the very warm waters, over 80 degrees Fahrenheit, accounts for some of these peculiarities.

The year that I stayed at the Playa de Cortés, in Guaymas, the fishermen staying there caught three hundred and eighteen striped marlin and eighty-one Pacific sailfish in three months. The largest striped marlin weighed 345 lbs. and the smallest 58 lbs. The heaviest Pacific sailfish was 121 lbs., and the smallest 28. Since then, those figures have been doubled in a single year's fishing.

Hungry as these little striped marlin are off Guaymas, they do not go to a bait with anything like the avidity of their big brothers off Chile. I must have seen two dozen fish that wouldn't strike at the bait and a half dozen that wouldn't follow it. At least half of those that come to the bait are first seen tailing out. I counted four lying side by side; and as we put the baits in front of them, one by one they came to them and to our teaser. I was told that this is a comparatively small number to see at one time, although it seemed a lot to me.

I saw six anglers in six different boats with six hooked fish which were all jumping at once inside a very small area. I wonder what would happen off Chile if, instead of two boats, there were sixteen fishing every day as there are off Guaymas. Loose marlin are constantly breaching in every direction in their inimitably graceful jumps, their bodies forming arcs that resemble lavender rainbows. Without hooks in their mouths and a heavy line dragging behind, their leaps are of course higher and more graceful. I watched one come greyhounding through the air twenty-one times to within a 1,000 ft. of the boat; but, of course, that had to be the day when my photographers were on another boat with Mrs Farrington. During my stay I also saw three striped marlin jumping at once, all in opposite directions.

The northward migration of the striped marlin in the Gulf appears to terminate just past Tiburon.

By all odds the best marlin bait that I used at Guaymas was the flying fish, and the second choice was sierra mackerel. If it is not possible to obtain flying fish locally, they can be shipped from Los Angeles, since they keep very well on ice.

There are usually plenty of mackerel to be caught by trolling, or they can be bought from the fish companies in Guaymas. A small 9/0 or 10/0 hook attached to 15 ft. of 250-lb. test stainless cable wire is the best rig here, just as it is in Chile. It is not necessary to put the hook inside the fish; just sew up the lips with a small piece of twine about 2 ins.

from the mouth of the fish, the regular New Zealand rig. The Mexican boatmen usually follow the Catalina custom, simply putting the hook in the lips of the fish that is to be used for bait.

Flying fish act well in the water and will troll for a good many hours before getting soft. The usual practice is to troll two baits from 60 to 75 ft. astern. Although all the boats are equipped with outriggers, they are not needed in these waters. I had good results, however, by using one outrigger and one bait in the wake. With this system it was possible to catch many of the fish that first approached the bait being trolled directly behind the boat and then shifted over to the outrigger.

As only a few marlin over 400 lbs. have been caught off Guaymas, and some of these were silver marlin, you will find 24-thread line and a 16-oz. rod too heavy for fish that hardly ever exceed 300 lbs. and usually hit around 150. While there are a few sharks, they do not seem to bother hooked fish overly much and besides you will only be fishing in about 250 to 300 ft. of water.

There is no question that the striped marlin is one of the world's great sporting fish, and in my opinion he is also one of the most beautiful. I would class him right up with the dolphin and the Allison tuna, but, better yet, he is a fish that can be caught by both sexes of varied ages without the angler having to take any severe physical punishment.

In California waters the marlin is not always easy to hook, and he knows how to get rid of the hook unless he is struck hard and the hook is well driven home as well. He puts up the best aerial surface fight of any of the marlins, if not hooked deep or in the eye, and can generally be counted on for an average of twenty-five or thirty wholesome showings above the surface of the ocean. I once counted fifty-two clean out jumps by a fish that weighed 375 lbs. and, believe me, they know all the tricks of the marlin trade. They will jump out completely clear and come back in head first. They will come out and fall on their sides. They will stand on their tails and fall over in a large smother of foam. They will tail-walk, but, best of all, they will greyhound over the ocean, sometimes making twelve or fifteen long, graceful leaps that always remind me of the big jackrabbits of the West.

The first crack fishing centre north of the Mexican border is San Diego. Excellent sport for many species can be found off this picturesque city which boasts a marvellous harbour. There have been several summers when the charter boats fishing out of San Diego brought in more than one hundred and fifty striped marlin, and while the anglers were trolling for marlin they were also making fine catches of dolphin and albacore. But it was the striped marlin that definitely put San Diego on the game-fishing map to at last give her a taste of the popularity and fame that had been enjoyed for more than forty years by her neighbour, Catalina Island, the birthplace of American big game fishing.

Previously, of course, San Diego had offered some of the finest angling for the smaller varieties to be found on the Pacific Coast of the United States. Small yellowfin and bluefin tuna, the famous yellowtail, mackerel, Pacific barracuda, white and black sea bass, and many other varieties had been caught—but it wasn't until marlin started coming in that San Diego really "arrived."

The angler who is after big game will find the fish only a short run off Point Loma, which guards the northern entrance to the harbour. There is an hotel at the southern entrance, very convenient to the fishing grounds, and a number of charter boats tie up at the dock there.

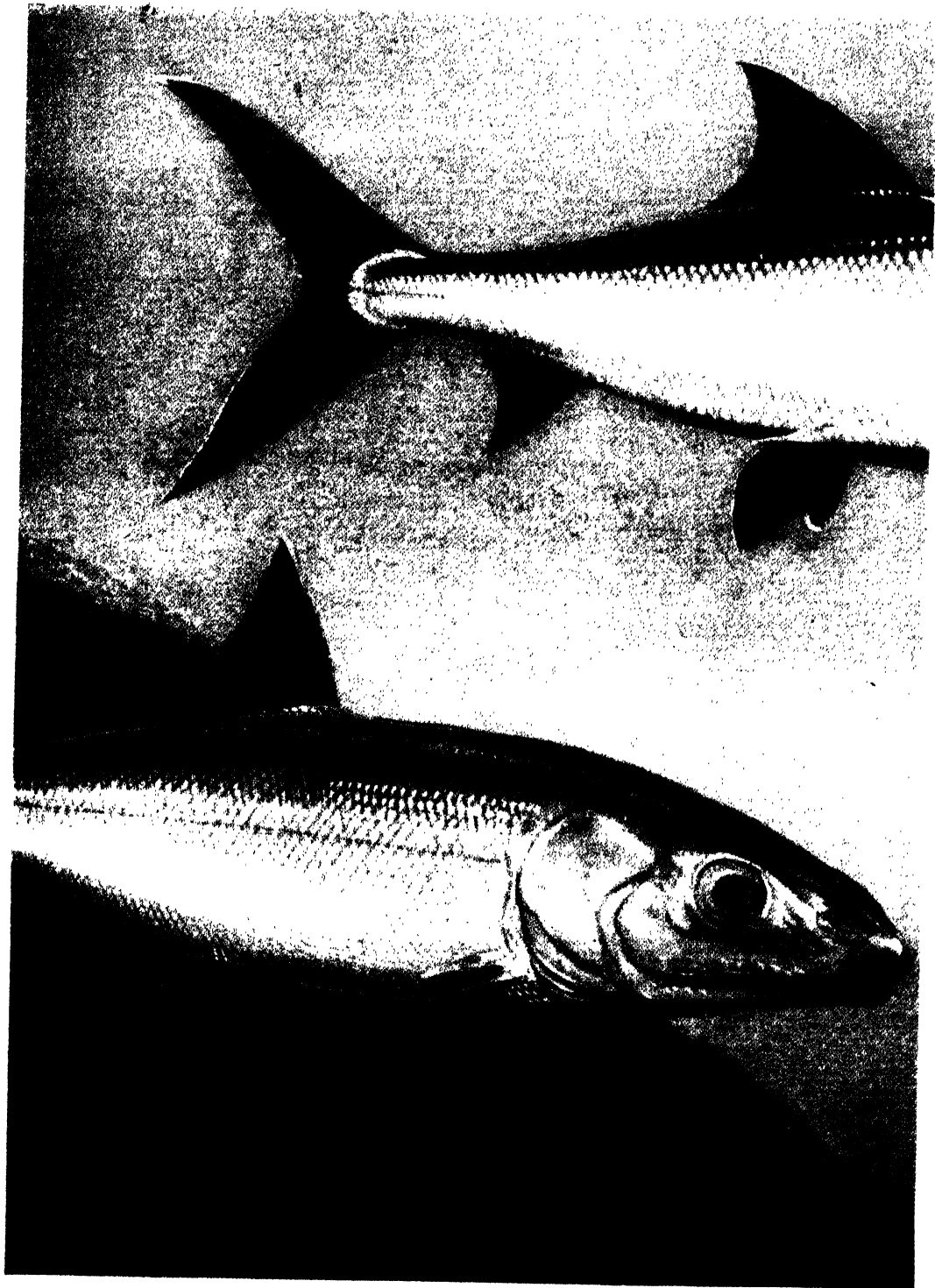


PLATE 31

BONEFISH (*ALBULA VULPES*)
known as LADYFISH

AMERICA
SOUTH AFRICA

Great fleets of fishing craft are continually going in and out of the harbour—the tuna clippers, sardine boats, shrimpers, jig boats, and many “spear boats,” as the craft of the commercial broadbill fishermen are called.

The majority of the marlin boats fish from Point Loma over to and around the Coronado Islands. While these three islands belong to Mexico, they are regularly fished by the San Diego fleet; they abound in all kinds of fish, large and small. Flying fish and mackerel are the principal baits used for marlin, and no tackle heavier than 16-oz. tip and 9/0 or 10/0 reel filled with 24-thread is needed. It is a great spot for the man who likes to catch light-tackle marlin. While there are some sharks around, they do not attack the hooked fish. The water is fairly deep; but, since comparatively few of the marlin go over the 300-lb. mark, the man who tries to take one on 9-thread should have no extraordinary difficulty.

A 15- or 20-ft. leader should be long enough, and a 9/0 or 10/0 hook large enough. The bait is usually rigged in the same fashion as off Catalina, with the hook put through the lips. The San Diego Marlin and Tuna Club, which was organized in 1934, has put into effect most of the tackle regulations that are so religiously followed at the Catalina Tuna Club, and they also offer attractive prizes for the largest of the numerous varieties taken each season. When the marlin are off San Diego, many of the private boats from Catalina will be found fishing this area.

The Catalina Islands are composed of Santa Catalina, San Clemente and San Nicolas running offshore in the order named. Near the east end of Catalina and facing the mainland 22 miles south of San Pedro, the seaport of Los Angeles, lies Avalon, the home of the Catalina Tuna Club. It was here that the first marlin of any kind was caught in 1904 by Edward T. Llewellyn. From that date until 1931, the striped marlin catches off Catalina steadily grew as more anglers went after the game. In 1931, 771 fish were caught, the majority in September and October. The previous high season with 223 was set in 1929. I know of anglers who have caught 50 marlin a season in those years. In 1934 a large run of marlin appeared off San Diego, and I know two men who in nine days of fishing caught a dozen fish. Since 1934 Southern California has enjoyed some very good runs of striped marlin, the best years having been 1936, 1937, 1940 and 1941. Good catches have been made often near Catalina, Balboa, San Pedro and San Diego, and occasionally in Santa Monica Bay.

The next best known striped marlin grounds off the Golden State are adjacent to beautiful Santa Barbara. There are a few charter boats available for marlin, tuna and other deep water surface species. These boats work out around the Santa Barbara Islands named Santa Cruz, Santa Rosa, San Miguel and Anacapa, and on occasions, the marlin fishing is extremely good in the channel between the mainland and these islands. Santa Cruz is the island most widely fished and has an excellent anchorage.

Good charter boats for this fishing are available at San Diego, Balboa, San Pedro, Newport and Catalina, and also Santa Monica.

Striped marlin do not appear much farther north than Point Concepcion. You won't find them often in water under 62 degrees Fahrenheit, and my guess is that they prefer a temperature around 70 degrees.

In the winter months they are abundant off the lower tip of southern California around Cape San Lucas and are taken both in the Gulf and in the outside ocean. They are also taken in large numbers off Japan and run about the same size as those off New Zealand. This may very well be the same body of fish, and it was from Japan that the

species got its scientific name *Makaira mitsukurii*. They have also been picked up around the Hawaiian Islands and the Marianas.

This fish is found in the Pacific Ocean only, is many times seen in great numbers, sometimes in pairs when breeding, and sometimes swims alone.

Its colour is: back and upper sides blue-green; rest of body, dusky silvery, becoming light, or lavender-grey striped when fighting or leaping. These stripes are about fourteen in number and run from the ridge of the back across the body. Its dorsal fin is deep blue; pelvics, black; caudal, dark greenish or black; other fins, dark greyish or black. Its eye appears to be yellowish with a black pupil.

It feeds on fish and squids and has been known to hit a feather bait and will readily hit cut baits or slabs taken from the bellies of bonitos and albacore. However, the best bait used in California waters is flying fish, and they are rigged in three different ways, all of which are good; the most common of which is to put a 9/0 or 10/0 hook through the mouth of the fish; still another is to put the hook about 2 ins. ahead of the mouth, sewing the mouth shut with a piece of twine; and the third is to rig the flying fish with the bait protruding from the belly as off Mexico. A 15-ft. leader is long enough for these fish, and the wire I prefer is the 25-lb. test cable, but they can also be taken on heavy piano wire. The heavy swordfish cable is too large for them and is not needed. 24-thread line when used with a 9/0 reel and 16-oz. rod tip is by all odds the heaviest tackle that should be employed and should be recommended only for beginners. A 6/0 reel filled with 15-thread and used with a 10-oz. tip is probably the best all-round outfit; but many anglers fish them with standard light tackle with 9-thread line, a 6-oz. rod tip and a 6/0 reel.

Leave it to your boat captain how fast you will troll, the length of line he wants you to fish, and whether or not he is going to fish with outriggers or use teasers. But also remember to hold your reel on free spool and be prepared to drop back the minute a marlin hits your bait; then, after having given him sufficient slack line and the reel is running fast, you must throw on your drag and strike him hard as many times as you can. If he is not on then, reel up fast and you will probably bring him back. Always keep your eye on the bait as the one-second look you may have as the fish swims up to it should prove to be a real advantage. (This advice holds for all kinds of marlin fishing.) There are also times when you will bait tailing fish and on these occasions the fish will go down and then appear behind the bait. Striped marlin only show their tails when on the surface unless aroused. Then they raise their dorsal fin which is otherwise kept in the slot on their backs. After the fish is hooked, keep as close to him as you safely can with the boat and let him run as much as he wants to. If you try to stop him, he will break your line.

Unfortunately some quarters in California, Mexico and New Zealand keep on calling marlin "marlin swordfish." Sometimes they are only referred to as "swordfish." This is entirely wrong phraseology, as the marlin is another fish and there are five different kinds in the waters of the world; three in the Pacific and two in the Atlantic; and there is only one swordfish and he travels under the name of the "broadbill swordfish" and is an entirely different species.

Imagine catching striped marlin just a short distance offshore amongst a group of islands whose rocky formations jut directly out from the water. They are plentiful on these wonderful grounds at Bay of Islands, New Zealand, and every year hundreds are caught. Zane Grey took the largest—a 450-pounder. It is here that one of the largest

fish ever caught on rod and reel was taken—a 976-lb. black marlin, caught by Laurie Mitchell in 1936, and I believe there have been five others taken topping the 900-lb. mark. About twenty are caught every year of fine size, and a fine fleet of boats is constantly after them.

The other great New Zealand hot spot is Mayor Island and here, in the 1946–47 season alone, 567 striped marlin were caught and 7 blacks. Many of the New Zealand marlin are hooked by the drifting method, and the best months to fish for them are January, February and March.

Black Marlin

The black marlin ranks second only to the broadbill swordfish as the most coveted salt water fisherman's prize. Fewer of them than of any other marlin have been caught. They are the masterminds and, in their efforts to escape the angler, will resort to every trick known to marlin anywhere in the world. The majority of them hit a bait with lightning speed. There is no dilly-dallying. They know what they want, and when they spot it they go in to kill and take it. Run after run follows the strike, and the most frenzied jumping is interspersed. Jumping, tail-walking, greyhounding and surface rushing are just a few of the exercises performed by these elephants of the sea, and, if the angler is not on the alert, they will sound when their surface fight is over.

Many of this species, weighing up to 714 lbs., have been taken off Panama every summer, and anglers who fish there tell me that most of them are pulled up off the bottom with their gills full of silt, sand and mud. This indicates, of course, that the black marlin (in common with the broadbill swordfish) makes a practice of burying his bill in the bottom.

And what a bill it is! As big around as a baseball bat. It tapers down to a sharp point and is much rounder and shorter than those of other varieties of marlin. Once you have seen one, you will never mistake it for any of the other species of marlin bills. His head and shoulders are also shorter and blunter in comparison with his great girth, and his dorsal fin shorter, than those of the blue, white and striped varieties.

When hooked, the majority show a deep blue on their backs, with a gorgeous light silver on their bellies; but, as they die, the top half turns to a very dark and dirty blue. As far as I have been able to ascertain, they show no stripes at any time. It is said there is one sure way to distinguish a black marlin—as was observed in 1940 when the Lerner-Museum of Natural History Expedition, headed by Michael Lerner and Doctor Gregory, visited Australia and New Zealand—and that is that the pectoral fins of a black marlin apparently do not and cannot be folded or pushed back flush with its flanks or sides, as can those of the other marlin. Instead, the fins project rigidly outward like a pair of stabilizers—and quite clearly that is what they are.

The true black marlin (*Makaira marlina*) is found and caught only in the Pacific Ocean.

Australia has a great many black marlin but they run smaller in size, averaging about 300 lbs. on their great grounds off Bermagui, a few hours' trip from Sidney. Like New Zealand, Australia has many marvellous sportsmen and many of them are ardent salt water anglers. It was on these grounds that Michael Lerner, handling both rods at one time single-handed, took two black marlin that weighed 307 and 264 lbs. A former 15-thread record fish was caught there and weighed only 108 lbs. At Cape San Lucas, Mexico, the 24-thread record weighed 588 lbs., and an occasional fish has also

been caught off Acapulco. The present 15-thread record of 268 lbs. was caught off Guaymas.

The proper black marlin tackle is a 12/0 reel filled with 600 yds. of 39-thread line, and the rod tip should weigh at least 22 ozs. A 25-ft. heavy cable leader wire should be used with an 11/0, 12/0 or 14/0 hook. Whole fish bait should be used, such as dolphin or bonito. The most successful anglers fishing off Panama always say, "The bigger the bait the better." I have used 15-lb. fish trolling for black marlin. In New Zealand and Australia many of them are caught drifting.

Silver and Blue Marlin

The silver marlin is practically the only marlin that is caught in Hawaiian waters. Black marlin are sometimes taken by the flag liners, also striped marlin and Pacific sailfish; but to my knowledge none has been caught by the rod-and-reel anglers.

I find practically no noticeable difference between the blue and the silver marlin so far as shape is concerned. In some specimens the dorsal of the silver marlin may be a trifle lower and the bill a trifle longer and more rugged; but, if you saw one alongside the boat or even on the dock or in the markets, you would, I am sure, believe it was a blue marlin. Yet when you see them jumping, or after they are first hooked, you will notice that they look a great deal more silvery than the blue marlin—although you won't be likely to pay much attention to the subtle differences, since colours mean very little, and different sex, water and food conditions change the colour of the fish.

Every Eastern angler who had fished at Honolulu or Kona, including myself, called these fish blue marlin. Ichthyologists, however, think they are another race of the same species to which the blue and black marlins belong.

Zane Grey's record for these fish still stands—a 618-pounder taken at Tahiti. The largest taken at Honolulu weighed 593 lbs. and was taken by Jim Harvey; Gordon Wilkinson caught the second largest. One that weighed 820 lbs. was caught, but unfortunately was disqualified. Most silver marlin caught off the Hawaiian Islands by the rod-and-reel fishermen run between 150 and 250 lbs.

It is possible to pick up these marlin while you are fishing for Allison tuna, and they are sometimes seen under birds. One morning I saw four of them feeding on a school of Oceanic bonitos at one time. It was quite a sight, I can tell you. The birds they swim under are the "bosun" birds, some of the fastest and most beautiful divers I have ever seen. They are called "marlin birds" by the Hawaiian fishermen, since there are usually marlin under them when they are sighted.

I do not believe there is any material difference between the fights put up by silver and blue marlin. To me they can be classed together in every respect—except as to the oceans they inhabit. Both are marvellous fish and rank right after the black marlin as the greatest prize to be caught among marlin. The silver marlin knows every trick the blue marlin does, the only exception that I could see being that his opening run is not quite as fast; but then that may only be my imagination, as it was plenty fast, I can assure you.

24-thread with a 10/0 or 12/0 reel and a 16-oz. rod tip is heavy enough for the marlin off the Hawaiian Islands. There is not much chance of raising a very big one on the surface; and, even though the water is very deep, there are, as I have said, practically no sharks. Off Waianae you will very quickly get into water that is over 1,000 fathoms in depth, and off Kona, the 2,000 fathom mark is soon reached. The drop-off from the 500 fathom mark is very sudden in both places.

The silver marlin was probably the marlin most frequently raised by members of the armed forces while fishing in the Marianas, Caroline and Marshall and Gilbert Islands during the war. As stated earlier, silver marlin weighing upwards of 350 lbs. are also being taken off Acapulco. Several have also been taken off Guaymas in the Gulf of California. It is strange that they have not been taken all over the Pacific, but that is marlin fishing.

The same tackle used in the Hawaiian Islands is correct for them off Mexico.

We will now go from the Pacific Ocean into the Atlantic and discuss the two marlins that inhabit that ocean—first, we will take the great blue marlin.

Off Havana, Cuba, from July until well into October the blue marlin can be found in all his glory. His fight is as hard as any place else and as you are fishing him in 2,000 fathoms of water, he has plenty of room to go down if he wants to. He can also be as fastidious about his menu here as at any other place and seems to tail out on the surface off Havana more than elsewhere. The tailing fish are always headed toward the westward against the current and are extremely difficult to make take a bait. When the blue and white marlin are hooked here, they also run against the current.

Commercial fishing for blue marlin has been practised off Havana for over seventy-five years and Cuban fishermen naturally know plenty about this magnificent fish. In fact Poey, the great Cuban scientist, originally named him the "Cuban black marlin." The commercials go out every morning about four o'clock and fish until around noon when the winds spring up, then they sail home. They drift many miles with the current and while, in the old days, they used to fish about three lines from their little skiffs, they now put out buoys and handle as many as twenty lines from 10 to 100 fathoms in depth. They usually use a large mackerel for a bait with a 14/0 hook and put a few pilchards on the point for appetisers. The rod-and-reel anglers also take a few fish drifting in the morning before starting their trolling in the afternoon. Very few of the commercial boats have motors and they usually sail or row in. A great many of these men fish out of Cojimar, a picturesque fishing village a few miles west of Havana harbour. There is a large fleet that sails out of the Almaderes River in company with most of the rod-and-reelers, and a few also sail from Havana harbour. There is also a big colony fishing out of Cabanas, about 40 miles to the westward, which is another fine ground. August and September are the best months for big marlin, but if the Stream is not running the fish will not be on the surface and the numbers caught fishing deep drop perceptibly. It is, therefore, naturally wise for anyone wanting to fish these marlin off Havana to ascertain whether they are there before making the trip.

The Cuban people relish blue marlin, just as the Americans do broadbill swordfish, as a table delicacy, and the price usually runs about thirty cents per pound. The white marlin is also a great favourite as a food fish and so are all the other species caught. The two commercial markets in Havana, along with those in Honolulu, are the most interesting I have ever visited. Fish of all kinds and descriptions are being traded in as if they were on the London Stock Exchange.

The writer caught the first blue marlin ever taken in the area around the island of Cat Cay on the outer edge of the Grand Bahama Bank, bordering the eastern edge of the Gulf Stream, some 50 miles from Miami. That was on 28th February, 1933. Since that time the waters between there and Bimini have become the hottest spot for these fish in the Atlantic, and more anglers have fished for them there than in any other place. The world's record, a 737-lb. blue marlin, was boated there, and the ladies'

record and 24-thread world's record was caught in the same waters. It weighed 730 lbs. A 9-thread record was also set up there, a fish of 146 lbs. Many fish over 500 lbs. have been taken, but, as usual, most of the big ones have got away. The water is very deep in that locality and there are also many sharks. May, June and July are the best months for blue marlins in that section, but they are also taken from December to August. They seem to come in, hang around for a few days and then disappear. They are hard to hook from an outrigger and will sometimes follow a bait without striking. At other times, they act very differently, and will hit your bait with such great speed that it throws a wall of water into the air that looks like the explosion of a depth charge.

On very flat days it is better to drift (fish deep) for these fish. They generally feed on the surface when there is some motion to the water. When hooked, they usually head into the north-west and the best time to fish for them is from 4 p.m. to darkness.

Each season off Havana the commercials take several blue marlin that weigh over 1,000 lbs. or 40 arrobas (an arroba equals 25 lbs. and is the way they speak of fish weights at the lovely Cuban capital).

A 12/0 reel with 39-thread line and 22-oz. rod tip and upwards should be used for them. Of course, it is possible to take the smaller fish on 24-thread line, but there is always a chance of getting a large one, and it is smarter to play it safe with heavy tackle. The leader should be 25 ft. long. Whole bonefish, dolphin, and Spanish mackerel make the best bait—the latter being preferred. A 3- or 4-lb. fish is the size to use.

There is also wonderful fishing for blue marlin off Walker Cay and the north end of the Bahamas, particularly in the months of April, May and June. There are fine accommodations and fish weighing up to 700 lbs. have been taken there. From time to time blue marlin are also picked up off Miami Beach and Palm Beach.

They have also been taken off Port Isabel, Texas, where J. R. Montgomery pioneered the grounds, and there are probably many other places in the Caribbean yet to be fished where they will be caught in great numbers. Incidentally, there have been a few taken off Kingston, Jamaica.

Hugo Rutherford caught the first fish off Cape Hatteras, North Carolina, and a friend of his, using Rutherford's boat, set the United States coastal record with a 592-pounder. Many anglers—I am among them—believe that there are without doubt a great many blue marlin there in July and August, as there are enormous quantities of dolphin and flying fish, and blue marlin really like dolphin. The grounds are just offshore of the Diamond Shoals Lightship.

Two fish have been taken with rod and reel off Montauk, Long Island, and a big one lost to sharks. Their summer cruise brings them as far north as the Georges Banks and 1,000-pounders have been harpooned there and off Martha's Vineyard, Block Island, and Montauk by the market fishermen. It is almost impossible to make them strike in these waters, and they are usually tailing.

Next to the broadbill swordfish, the blue marlin is the greatest prize that can be taken in the Atlantic. He is a hard, savage fighter; knows every trick in the marlin trade; is exceptionally tough on tackle, and makes the fastest opening run of any fish the writer has ever hooked.

White Marlin

White marlin are picked up throughout the winter months from Walker Cay to Cat Cay and Bimini, and there is always quite a run off Miami Beach in February and

March. The 1st of April sees the start of a terrific run of white marlin, the largest in the Atlantic, and you can always count on this great little marlin being off Havana until well into July. June is the best month, and in 1947 twelve were caught by one boat in a day's fishing—the world's record. The white marlin do not run large off Havana, probably averaging about 70 lbs., but they are as active as they are any place else and just as much fun to catch. They also command a good price in the market, the meat is good and the commercials also take them drifting at various depths during the morning, and the rod-and-reel anglers put in their appearance in the afternoon.

The white marlin also swim northward in the summer with the blue marlin, and great quantities of them are seen on the Georges Banks, and in 1945, a very warm summer, one was harpooned off Glace Bay, Nova Scotia, and a school sighted off Halifax. The usual turning point, however, for the end of the migration is from No Man's Land to Nantucket Lightship, and the anglers fishing out of Cuttyhunk Island, which is a fine place to base with a good harbour, catch quite a few, although they do not strike here consistently well. Tailing fish are also seen here in numbers, as they are off Block Island and Montauk. They strike much better at the latter place and in some seasons many are taken. Freeport, Long Island, has also had some good years.

By far the hottest spot for the white marlin in the north is Ocean City, Maryland, which was pioneered in 1934 by Maryland's outstanding sportsman and fisherman, the late Paul Townsend. They are taken 21 miles offshore over a place called the "Jack Spot." In 1939, 55 boats fishing for them brought in somewhere around 1,100.

The great thing about this marlin is that it is taken near large centres of population, and consequently many anglers have a chance to catch it while out angling for school tuna and other fish. This grand little marlin has a nice habit of grabbing artificial feather lures that are being trolled for tuna, dolphin and bonito. When this happens, never slack back to it as you do when using a fish bait; just lower the rod tip and then strike. When marlin fishing with a bait, always give the fish line off the reel when it strikes, and then, when the reel spool is speeding up and you really feel the fish is going places, throw on that drag and hit it hard! Strike as many times as you can. The main thing is to set that hook and, believe me, all marlin have mighty tough mouths.

The little white marlin weighs from 20 lbs. upward to 161 lbs., taken off Miami Beach, which is the world's record. The 15-thread record weighs 144 lbs., off Bimini, and the 9-thread high mark is a 114-pounder, from Ocean City, Maryland.

The 9-thread line with 6-oz. tip is perfect for this great little marlin, and no line heavier than 15-thread with 10-oz. tip should be used for it. Regulation 3-6 tackle is perfect for the experienced angler. A No. 8 piano wire leader is the best size to use for white marlin and any daintily cut strip bait is effective. A 7/0 or 8/0 hook is large enough.

If you ever see any billfish breaching, as jumping is called when they are not hooked, it is because they are trying to rid themselves of the remora or suckerfish which sometimes cling to them. The parasites get into their gills, annoying them greatly, as they get a free ride and free meals eating particles of food that the larger fish kills. It is believed the majority of the spearfish ram their enemies and slap or sideswipe the food fish they prey on to knock them out. Breaching fish may also mean that fish are about to leave a locality or a migration is about to begin. Before it does, wherever you fish for these wonderful sportsmen, I hope you will take your share.

CUBAN FISHING

By ERNEST HEMINGWAY

A fisherman, with luck, will find good fishing off some part of the Cuban coast in almost every month of the year. However, the hurricane months are August, September and October, and when these storms occur the heavy rains flood the rivers so that the inner edge of the Gulf Stream is discoloured over some of the best fishing bottom. This discolouration and dilution of the Gulf Stream prevents the pelagic fish from travelling over their usual feeding grounds or, at least, keeps them away. The mass of fresh muddy water also pushes the current of the Gulf Stream out several miles to sea, especially if the current is weak, and a series of hurricanes can ruin the September and October fishing for large marlin off the north coast of Cuba.

Hurricane months, though, in the years when hurricanes do not occur, have the pleasantest and best fishing weather of the whole year, and it is in these months that the largest marlin run in the greatest numbers. Over a period of seventeen years I have found that the greatest run of big marlin—what are called in Cuba the black, blue and striped* marlin—comes in the second and third weeks of September. The heaviest and most dependable run of white marlin usually comes in the last two weeks of May.

White marlin are sometimes caught as early as the middle of March, and when they are running well and the current of the Gulf Stream is strong they are plentiful off the north coast of Cuba between Bahia Honda and Matanzas through April and May and until past the middle of June. They will weigh from 35 to 140 lbs. and, over the years, I have found them to be the finest fighting and most satisfactory of all fish to catch that I have ever dealt with on light and medium tackle.

When they are running plentifully they are in great numbers. I have often seen the fins of as many as six showing at one time and have seen more than thirty individual fish in a day. I once caught seven in one day in the days of very primitive equipment, and in 1947 two Cuban sportsmen, Pepe Gomez Mena and Martin Menocal, boated twelve in a single day. It would probably be possible to better this record during a really heavy marlin run, but it is an extraordinary one as it was made with a heavy trade wind and a very rough sea.

The white marlin is a very beautiful fish which can out-jump the sailfish, run almost as fast as the wahoo and, when he settles down to it, can pull harder for his weight than the amberjack. Beside him the tarpon is just a leaping slob.

Of the best known sporting sea fish, the bonefish is a strong fish with a lovely fast run. But he does not jump. The wahoo makes a spectacular run when he first takes a lure and another incredibly fast run when he sees the boat or angler after you have brought

* Striped marlin is generally used only for a Pacific species.—Ed.



PLATE 32

BLACK CRAPP
(*POMOXYUS NIGRO MACULATUS*)

N. AMERICA

him in. But he never leaps except when taking the bait. The tuna fights a deep, dogged fight when he is in condition, and can make almost heart-stopping first runs. But he does not leap either after he is hooked. The male broadbill swordfish is a fine fighter, strong if not fast, which can and occasionally does leap. But his mouth is so soft that most anglers attempt to make sure of him by having him swallow the bait, which certainly does not tend to present him at his best.

There is so much nonsense written about the relative gameness of fish, about how they fight, etc., that there probably should be some clarification. Almost no fish are game or fight in the sense that game cocks fight. That is, they do not fight the fisherman. They simply make more or less frenzied and sustained efforts to escape.

Some fish are intelligent in their efforts to escape, and well equipped muscularly and in build to struggle against the hook and line, and can be relied upon to make the utmost effort not to be brought to gaff. But what that has to do with true gameness and with fighting I do not know. If the fisherman had a hook in his mouth, or his jaw, or in his stomach which was attached to the gear he was playing the fish with, and on which comparable pressure would be exerted to that put on the fish, then I think the term fight might be applied.

Sometimes, of course, in playing a really big fish we become extremely uncomfortable and, before reels were turned into winches, a deep sea angler was accustomed to being both uncomfortable and exhausted. But until fishermen agree to be hooked in the mouth or the stomach (depending on the system they follow) I think they exaggerate somewhat when they employ the term "fight." Since I have offended by using it in this article until I began to think of my fellow citizen of the sea, *Xiphias gladius*, with the hook in his stomach, I will try not to use it from now on. If it is used please do not take it seriously.

The only fish that I have ever seen keep their heads completely while attempting to escape and then, when captured, attack their captor viciously and cold-headedly, are the mako shark, the moray eel and the grey snapper. The mako shark, which can jump as high as any fish, run faster than most, and pull as hard as any, seems to me to be a true fighter. He will deliberately leap at a man in a dory who has him hooked on a handline. I have authenticated many instances of this among the commercial fishermen of Cojimar, the great shark, swordfish and marlin fishing port of the north Cuban coast, and was lucky enough to film one such attack. I have also seen the mako shark, after being clubbed and tied up, come out of the effect of his clubbing and wait quietly until someone would come within range of his jaws.

The grey snapper is the most intelligent fish I have had the luck to encounter. Some studies on his intelligence were made at the marine biological laboratory at Loggerhead Key in the Dry Tortugas and are, I believe, available. At any rate there was a summary of some of them in an excellent book on fishing by Gifford Pinchot. We used to study them too, by the day, at the old wharf on Garden Key in the Dry Tortugas when we would spend the month of March there fishing the reefs and the channels and the snapper and grouper banks.

The grey snapper bites sharply, runs and pulls as much as a bass does to escape, and resists the hook and line until he is temporarily exhausted. But once he is caught, watch out. He will lie quietly, recuperating his strength, husbanding the moisture in his gills, watching you with his beautiful eyes, and waiting for one chance to sink his biting teeth into any hand that comes near him. He has beautiful biting and holding

teeth and you have to kill him to get him to turn loose, or break him off. To me he is a dead game, truly fighting fish.

The moray eel, when hooked, makes such a slapping, waggy, snaky, ineffectual attempt to escape that you would think he was in a panic. Really it is all he can do. So he does it. Once in the boat, though, he will attack the fisherman with absolute bravery and determination. I have heard that big conger eels do this too, but have never had the luck to fish where they were caught. I have never met the piranha of South America, but he certainly sounds like a fighting fish, too.

Now to get back to Cuban fishing. Mixed in with your white marlin run will always be some big marlin. This is especially true in April when some of what are called in Cuba the striped marlin appear. This is a marlin that runs in weight from 125 to over 1,250 lbs., with a small, depressed head, long finely-shaped bill, bright silver colouring when the fish dies, and broad violet stripes from $1\frac{1}{2}$ to nearly 3 ins. wide, which are clearly visible when the fish is in the water as well as when jumping and which remain visible after the fish has been dead several hours. These fish are as strong, as fast, and as determined in their resistance to the angler as the white marlin. I would say they are the finest fish in the sea to catch on medium and heavy tackle. They are so much stronger, faster and finer leapers than the so-called blue marlin which follows them in migration that there is no comparison unless you compared a great steeplechaser in training with a brood mare in foal.

The striped fish run heaviest in July, August and September and occasionally in October. The dark fish, which we think little of in Cuba, much as a trout or salmon fisherman would not be proud of catches of spawn-bloated trout, nor of kelts, run on and off all through the summer and are thickest in the second and third weeks of September provided hurricanes have not fouled the water. At that time they are just about to spawn, spawning, or spent. I wish there were some way fishing could be suspended during September, despite the fact that it is our greatest run of fish.

We do not yet know how much the marlin has been damaged due to the increase in so-called sport fishermen. It is not the amount that are caught but those that are broken off to die with hooks in their bellies or with lines or leaders trailing from their jaws. Certainly there has been a decrease in the size and amount of fish caught in New Zealand, and there has been a notable decrease in the size and number of marlin caught off Bimini and Cat Cay in the Bahamas since these places have been heavily fished. The last place in the Atlantic these fish are fished for each year is off Cuba and it would be an excellent thing if there could be a closed season during the height of their spawning run.

In addition to marlin you may catch wahoo off the north Cuban coast in the winter months and when the wind goes into the north in the spring and summer months. Each year a few big tuna are caught off Mariel, Havana and Matanzas. To the west of Matanzas there is a sector of the coast where the Gulf Stream makes in very close to the coastal cliffs carrying depths of several hundred fathoms almost to the cliffs. Here there are always bonito, Arctic bonito, albacore and occasional Allison tuna. This is a very fascinating part of the coast to fish and abounds in feed.

There is excellent fishing for dolphin when the Gulf Stream is running strongly, and any time there is a heavy current you may encounter very big dolphin when fishing well out. The big male dolphin are strong and beautiful fish. The females are beautiful but not nearly as strong. They leap equally well but tire much faster. Sometimes there

will be migratory schools of dolphin in the Gulf Stream both in winter and summer which will be more than half a mile in length. You can be fast to two fish, bring one in while the other angler keeps his in the water and continue to catch dolphin from the school, members of which will chase the hooked fish until you are sated with this most pleasant and exciting fishing, or exhausted by it.

There is no reason to stop catching dolphin on a day when the great schools are running unless you are too tired or want to get away from them and try for something else, since they are an excellent food fish, readily saleable in the market and, should the market be glutted, you can always give them away to the fishermen of the port you may be fishing from, who value them greatly as food.

For eating I should, quite arbitrarily, rank the wahoo first among the sporting fish, the dolphin next, the white marlin and (Cuban) striped marlin third; although they must never be eaten until they have been at least two days on ice, just as fresh killed beef should be hung before it is fit to eat. After these, but all excellent eating, come the Oceanic bonito, the kingfish, the cero mackerel, the albacore, the bonefish, and the tarpon when taken from clean water before spawning. After spawning the tarpon meat is bitter and stringy. The bonefish needs five longitudinal cuts, and a professional to make them, to eliminate his bony system and make him fit for cooking.

Sailfish are good eating but, like the marlin, they need to be on ice several days for the fibre to break down so that they are not tough. The length of the stay on ice is in direct proportion to the size of the fish. Very small marlin and small enough sailfish may be tender enough to eat the same day they are caught. They are good either baked or broiled, the fillets being cut away from the bone. A marlin that dresses out 500 lbs. needs at least five days on ice, preferably well packed in ice, to be right for eating.

All the members of the snapper family are excellent eating as are most of the groupers. It is better to rely on local knowledge for the exceptions. Broadbill swordfish are, of course, splendid eating, but they are best known as a commercial fish. Unlike the marlin they can be eaten as soon as caught since the flesh is much softer, fatter, less muscular and does not need to be broken down in the ice.

The south coast of Cuba, as soon as you are outside the banks and in deep water, has great schools of albacore and bonitos. This fishing is now being commercialised, using the Japanese methods of trolling, and much more will be known about it shortly. In the deep water of the Caribbean there are wahoo, sailfish and occasional marlin, although the routes these travel have not yet been determined accurately.

In all of the Cuban coastal rivers there are tarpon and usually dog snapper, snapper and snook or robalo. Tarpon are so plentiful in some rivers that catching them can lose all enchantment once you become familiar with the acrobatics of this spectacular, inedible (except at certain seasons) and short-winded fish.

Along the Colorado Reefs, from Bahia Honda to Cape San Antonio, there is splendid reef fishing for the different groupers, mutton fish, snappers and the inevitable barracudas. There are two migrations of mutton fish, called *pargo criollo*, which progress along the south coast, round Cape San Antonio, and proceed along the north coast. There is a spawning run on the north coast in June of these splendid food and sporting fish which occurs with greatest regularity, reaching the spawning grounds around Varadero Beach near Cardenas regularly within a day or two of 24th June.

In spite of its amazing fishing there is only one charter boat available out of Havana at this moment, the *Cayman* of Dr Charles Rocca which fishes from the Almendares

River. It is to be hoped that the Cuban Tourist Commission will encourage the equipping of adequate boats shortly. A really keen fisherman could always find sport fishing with the commercial fishermen out of Cojimar.

Cuban sport fishing would have been greatly advanced were it not for wartime restrictions which were continued in force long after the war was over.

There is good fresh water fishing for the largemouth bass, which were introduced in 1929 and do excellently in the clear cool spring-fed streams which are a surprise and a delight in a country so close to the tropics. These bass can be taken by anyone who can spin or fish a light lure, and run from 3 to as much as 8 lbs. in weight. They are excellent eating since the water is cool and they feed on fresh water shrimp and crawfish. The stream fishing is first rate in the rivers that run into the bay of Matanzas and there are many other fresh water stream fish which will take an artificial lure (the best and most killing is the American "Flat-fish"). I will not attempt to confuse you with their local names. A man who can fish a light artificial lure moderately well should be able to take a half-dozen bass and a creel full of excellent pan fish a day.

There are also largemouth bass in various lakes and lagoons, but their fishing is not as pleasant nor are the fish as good for the table as the stream fish.

If you came to Cuba to fish and the wind in winter was blowing so that Gulf Stream fishing was impossible, you could get good sport with bass around Matanzas, where there is a pleasant and simple hotel, or you could fish for tarpon in the harbour of Batabano where there is another hotel possible to stay at.

All fishing is a gamble and you might come to Cuba in the most highly recommended months and find heavy south winds blowing, no current in the Gulf Stream and the ocean naked of fish, birds, weed and current. There have been disastrous seasons. But in nine years out of ten there will be good fishing in the epochs mentioned at the start of this article, and if you want to try to catch a really big marlin or to have superlative sport with white marlin, the north coast of Cuba probably gives you as good a chance as you can get.

SAILFISH OF THE WORLD

By S. KIP FARRINGTON, JR.

The Atlantic Sailfish

The time is 12.30; the place is the inside edge of the Gulf Stream between Jupiter and Hobe Sound, Florida; the date is 29th January, 1948.

I am on board the "Salty," owned and skippered by Ben Crowninshield of Palm Beach, one of the world's finest anglers, with his wife Denny acting as mate. She is one of the leading lady anglers of the world.

The inside edge of the Stream that day was about five miles offshore. We turned on the radio telephone and listened to this conversation between two fishing boats:

Captain Sherrick Hiscock is talking to Captain Rudy Steinhauser, two Palm Beach sailfishing guides and fine ones. Hiscock is kidding Rudy, and says: "What's gone wrong with the fishing? We've been here an hour and a half, had twenty-one fish up, boated two and released fourteen, and now we haven't seen one for five minutes!"

Steinhauser laughs and says: "I've had twenty up and released fifteen."

Visualise forty-eight boats from Palm Beach getting this kind of fishing, with a dozen boats more out of Stuart!

The Palm Beach fleet runs up about 25 miles to get into the fish. They are usually found there every day except when there is a north wind when they are directly off Palm Beach, only four minutes from the Inlet dock. There is nothing but sailfish, porpoise and spinner (black-tip) sharks all over the Gulf Stream, while overhead the gannets are diving as only the gannets can. Occasionally dolphin and wahoo are caught by this fleet of boats, but the majority catch is sailfish, America's most advertised citizen of the deep—perhaps too widely advertised for its own good.

The greatest concentration of Atlantic sailfish known today extends from the St. Lucie Inlet, at Stuart, to the Boynton Inlet just below Palm Beach. These grounds are comparable to Nova Scotia for tuna and Tocopilla, Chile, for striped marlin and swordfish. It is nothing to see twenty to thirty flags flying from many boats after a day's fishing.

But very happily, due to the work of three sportsmen from Palm Beach—L. C. Johnson, Herbert Bedford and Ben Crowninshield—over 80 per cent of the fish are being released, and all of the boatmen and anglers are co-operating by cutting the light leader wire near the hook if they cannot get the hook out of the fish. This does not harm the fish, as the hook wears out amazingly soon. This committee has worked incessantly, giving dinners, showing moving pictures and seeing that the newspapers give more publicity to releases than to catches, and they have also raised funds which are to be used for buying prizes for the boatmen and anglers who have released the largest number of sailfish. As an example of how their efforts have worked out, the Annual Palm Beach

Sailfish Derby opened on 25th January and closed on 15th February, 1948, a total of twenty-two days. During this period, 450 boats went out of the Palm Beach Inlet carrying 1,953 individual fishermen. These sportsmen caught 1,579 sailfish, of which they released 1,089. There were twenty-one gold button fish, which is the term given to sailfish measuring over 8 ft. at that hot spot. Naturally while the Derby was on more fish were brought in, and many large ones had to be measured, and more anglers were out who were new to the sport and wanted to take their first fish in to be mounted or photographed. But in the daily fishing, over 80 per cent are being released.

Fine catches of sailfish are also made the year round off Fort Lauderdale and Miami and Miami Beach, where the world's largest charter boat fleet sails daily in quest of them. They are plentiful all the way down the Florida Keys and are occasionally picked up off Key West, as they are off Havana. On the other side of the Gulf Stream, at the great marlin hot spots of Walker Cay, Bimini and Cat Cay, they are steadily taken, but are not fished for very much, and on occasions one is caught off Nassau, the capital of the Bahamas.

Sailfish migrate north in the late spring and summer months, and quite a few are taken off Mayport, Florida, adjacent to Jacksonville, at the mouth of the St. John's River. Here you have to run about twenty-five miles offshore, as the Gulf Stream is farther out. Southport, North Carolina, has developed into quite a centre for them in the summer months, and quite a few are taken there in and around Frying Pan Shoals. They have also been caught off Cape Hatteras, North Carolina, and Ocean City, Maryland, and have been reported as far north as Long Island in warm summers. They are exceedingly plentiful off Galveston, Port Aransas, and Port Isabel, Texas, during the summer months, and many are caught. They school as they do off Stuart, Florida.

The Atlantic sailfish's Latin name is *Istiophorus americanus*, and it is said that there are three sub-species called the Wright's, the Maguire's, and the Volador. There are only small and minor differences in them, such as the shape of their sail and the number of dots in their dorsal fin which is also the sail. This is probably due to age, and the colours mean nothing, as food conditions, sex, and water play a big part in how a fish is coloured, as may very well the temperament or mood he is in.

The official Atlantic record is 106 lbs., and the largest boated weighed 119½ lbs. It was landed off Key West by Ernest Hemingway, who unfortunately had had to take the rod from a guest, thereby disqualifying the catch. However, I would guess the average weight of the Atlantic fish to be around 50 lbs. I feel sure that the female fish are usually the fattest and the heaviest. A sailfish weighing 15 to 25 lbs. is a real prize, but there are more of them around than you might expect. Very small specimens have also been found, and it has been pretty well established that these fish breed somewhere in the waters off Florida and the north coast of Cuba. Tiny sailfish have been taken from the stomachs of dolphin and other fish.

The best bait for sailfish off Florida is a small stripped bait taken from the belly of dolphin, bonito or mackerel. At Palm Beach they use cut mullet exclusively. Ballyho are also good.

Nine-thread line with 6-oz. tip is the heaviest tackle that should be used for sailfish. Six-thread line with a 4-oz. tip is perfect, and for the man who has a lot of experience and likes to stunt it, three-thread line testing 9 lbs. used with a 3- or 4-oz. rod tip is the acme of sport. You must be careful, though, not to waste all the time of your fishing companions, but I believe the average fish on this tackle can be brought up for releasing in

from thirty minutes to an hour. A 7/0 or 8/0 hook should be used with No. 8 piano wire, and a 4/0 or 6/0 reel is the best choice. For both the Atlantic and Pacific angler, the best tip is to keep watching the bait always, as the three-second jump you will get on him by seeing him rise to the bait is very advantageous. If you are fishing him from an outrigger, you must strike when the line comes up tight; if he is not there, reel in fast, race the bait, and the fish will usually follow it right up to the boat. Then hold the reel spool with your thumb, making sure the drag is off, and when he grabs it again let him take line until that reel is really spinning. Then throw on the brake and strike him hard three or four times. If he is not on then, repeat the procedure. These last instructions also apply if you are fishing in the wake without using an outrigger. Hold the rod and reel on free spool, keep alive and keep looking. That's the best advice besides talking it over with your guide and following his instructions.

The Pacific Sailfish

The Pacific sailfish is found all over the ocean of that name, and in the Indian Ocean where they are reported to get much larger in size. This, however, has never been confirmed. Their scientific name is *Istiophorus greyi*, and there are said to be some eight or nine sub-species, but, as with the Atlantic fish, I take very little stock in these titles that are given them. Evidently every time Zane Grey caught a sailfish he would give it a new name, and the great scientists Jordan and Evermann kept giving them new sub-specific names whenever they were reported from outlying places in the Pacific.

Sailfish have been caught off the Seychelles Islands and Madagascar in the Indian Ocean; at Tahiti, and the Solomon Islands, where Admiral Tug Ainsworth, U.S.N., caught the first ones during the war. They have also been caught off Luzon, Palawan and Samar in the Philippines, as well as off Guam, occasionally off Japan, and, not as frequently as one might expect, off the Hawaiian Islands. The Galapagos have produced the two largest rod-and-reel catches to date and there are quite a few there, but it is difficult to keep your baits in the water because of small fish and birds.

On the South American west coast they have been reported as far south as northern Peru, where Michael Lerner caught the only one taken on rod and reel off Cabo Blanco. They are plentiful off Ecuador, in the vicinity of Salinas and La Plata Island.

But when a salt water angler hears the word "Panama," his mind immediately turns to that grand and glorious citizen of the western ocean—the Pacific sailfish. From May to November there are more of them in Panama Bay than in any other waters supplied with fishing boats to go after them. They also average better in size.

Balboa is the headquarters of the fishing fleet and the home of the Pacific Sailfish Club, one of the best run fishing clubs in the world. President Thomas Dee heads this organization, and its efficient and hard working secretary is Forrest Hallett—if you want to write to him about boats. There are not many charter boats there, but the members are always ready to take visitors out in their boats. They usually only fish over week-ends, so I would advise you to make your arrangements before arriving. The Pacific Sailfish Club keeps the records of the various catches, and many attractive prizes are awarded each year, not only to regular members, but to non-resident members and visiting fishermen as well. To further the interest in salt water angling, the government of Panama also presents yearly prizes through the Club.

The most productive Panamanian fishing grounds are around the Perlas Islands, forty miles from Balboa. The two main islands in the Perlas group are San Jose and

Pedro Gonzales. The latter is most favoured because of its good anchorage. Pacific sailfish, however, are caught all over the bay, and two of the best spots are around Taboga and Taboguilla Islands, which you pass on the way out from Balboa. It is possible to fish these two islands and return to Balboa at the end of each day's fishing.

The Pacific sailfish is usually seen behind the bait before he strikes. When he hits, a normal amount of drop-back is given, depending on his actions. Naturally, if he grabs the bait hungrily and rushes off with it, you do not give him as much as if he had been cautious about taking it.

My experience with the Pacific sailfish off Panama was that they are much easier to hook than those I caught off the Mexican coast in the Gulf of California. When these fish are biting well off Panama, they are never seen tailing; but perhaps that is the reason they do not bite so well in the Gulf of California. Then again, the dainty baits used at Panama—strips of mackerel belly—are not easily obtained in Mexican waters. There, the usual bait is whole mullet, which no doubt makes hooking a great deal more difficult.

When these fish first arrive in Panama Bay, or when their migration has begun in the fall, enormous schools of them may be seen with their tails protruding high above the surface of the water. When they are in this position, it is most difficult to make them strike. At such time, the regulation medium-sized feather is the bait usually employed with the best results. When a sailfish hits the feather, you must never give him line; simply drop the rod tip and then strike immediately. If line is given, the fish is almost sure to feel the metal and spit it out, and I must say you can't blame him. Of course, with a cut or whole fish bait he is much less likely to feel the hook.

The average Pacific sailfish that I have caught is naturally a much better fighter than his smaller Atlantic cousin. In addition to size, I also think he has more guts and, pound for pound, a lot more power. He knows all the on-the-surface acrobatics and will jump high and hard for some minutes. After that, he seems to tire quite easily, and I am inclined to believe his large and heavy sail, which is always raised after he is hooked, may hinder him.

The bill of the Pacific sailfish is longer and more tapering than that of the Atlantic variety; the sail larger in proportion to its size, and the pelvic fins longer. The colouring is exquisite, and no fish that I have ever seen is more beautiful as it dies than the Pacific sailfish. The light blue is indescribable, and the fish ranks right up with the striped marlin, the Allison tuna, blue marlin, and dolphin in this respect. He is a thoroughbred all the way, and I have nothing but admiration for him. Like his Atlantic relative, he should certainly be released unless he is a prize winner, has been badly hurt by the hook, or is your first fish. Sailfish are not overly good on the table unless they have been smoked, but then they are delicious. There are great quantities of sailfish in Panama Bay, and they average as large as can be found anywhere.

The world's record Pacific sailfish, weighing 221 lbs., was taken off the Galapagos, however, by C. W. Stewart. E. Tremayne, a fine British sportsman, fishing with T. O. M. Sopwith in 1938, caught the second largest, weighing 190 lbs., also off the Galapagos. Bill Gray took fish number three at Cape San Lucas. It weighed 182 lbs. The largest recorded off Panama weighed 174 lbs., and was caught by H. H. Hammer in 1926. The ladies' record was set up by Miss Peggy Hardwick, off Cocos Island in 1931 with a 165-pounder. Incidentally, there are a lot of fish in those islands.

During 1938, more than four hundred Pacific sailfish were taken from Panama Bay by a fleet of perhaps twenty boats which were only going out here and there. The 9-thread

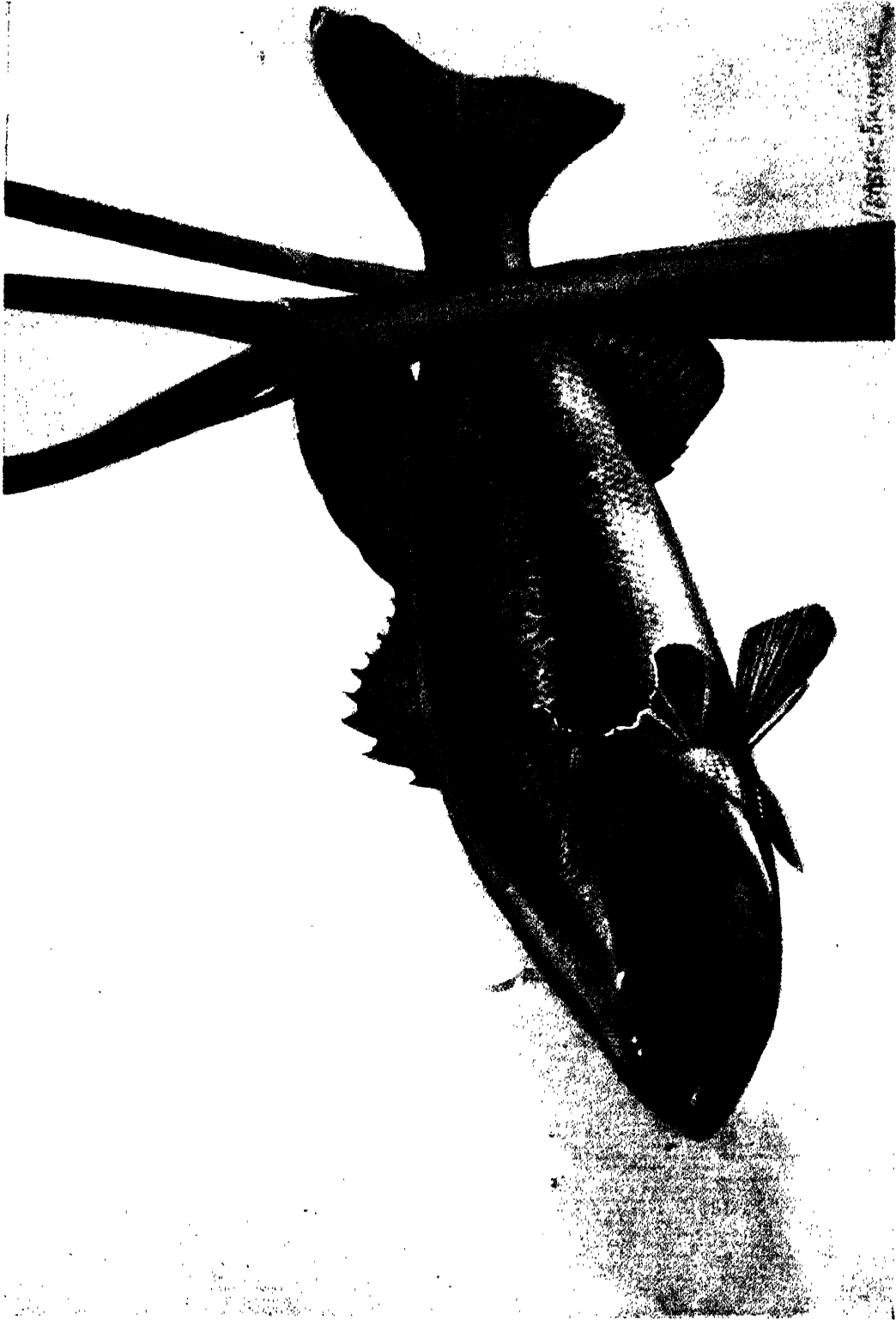


FIGURE 53

LARGEMOUTHED BLACK BASS (*MICROPTERUS SALMOIDES*)

AMERICA

record Pacific sailfish was taken by the writer in 1939, and weighed 141 lbs., and he also caught the 6-thread record of that time on the same trip. It weighed 98 lbs. This mark has now been raised to 132 lbs., and was caught by Bill Pigg at Guaymas, Mexico. Mrs Farrington was the first woman to take a Pacific sailfish on 6-thread in Panama waters, at this same time.

Proceeding north, we find the Pacific sailfish fishing out of Acapulco, Mexico, just as good in the winter months as it is off Panama in the summer months, with the exception that the fish do not average as large there. There is a fine fleet of boats sailing out of there, good hotels to stay in, fine beaches to swim from. It is only an hour by plane from Mexico City and is a wonderful place to visit. The fish have been there for many many years, but Acapulco is still only in its infancy for rod-and-reel fishing. Very fine marlin are taken there also and an active tagging programme is carried on.

During the winter months, great quantities of Pacific sailfish hang around the White Friar Islands and Las Tres Marias, which are about 150 miles from Mazatlan. Here, great schools of fish are seen tailing and the anglers who have been in among them tell me that it is almost next to impossible to get them to strike at anything.

However, from Cape San Lucas north, all the way up the Gulf of California from La Paz to Guaymas, the sailfish come into this gigantic fish trap from March and April on, to remain until October and November. At Guaymas, there is a marvellous hotel, the Playa de Cortés, with an excellent fleet of fishing boats. This port is only a twelve-hour run from Tucson, Arizona, via the Southern Pacific of Mexico which operates air-conditioned sleeping cars. It is a great spot. The best fishing is in May, June and July, and the sailfish average about 100 lbs.

Mexico is a grand country and the non-resident anglers are assured of a warm welcome. The customs officials are most courteous and all one needs to enter is a tourist card and proof of citizenship, and a permit to fish, all of which are easily obtainable.

Only an occasional Pacific sailfish has ever been seen off the coast of California, so my heartiest advice if you really want to see him at his best is to try Mexico or Panama, and I am sure that great sporting fish the "pez vela" as they call it there, will give you a hearty welcome.

SWORDFISH

By MICHAEL LERNER



WHEN the late W. C. Boschen caught the first broadbill swordfish to be taken on rod and reel, while fishing off Santa Catalina, California, in 1913, he pointed the way to a most interesting and difficult form of big game fishing. Angling history does not record the exact methods Boschen used in hooking and fighting this initial catch, but anglers who have since sought swordfish have found them the most elusive of all big game fish.

Since Boschen's catch those of us who have been fortunate enough to encounter this formidable angling adversary can testify that no other big game specimen—without exception—requires the patience, luck and skill that the conquest of the swordfish demands, and of these patience is the most important. Hours, days and weeks are sometimes necessary even to locate and hook one. And, as in all fishing, that is only the beginning. I sincerely believe that swordfishing combines more elements of big game fishing than any other known today. This fish is surely the most demanding, but just as surely the most gratifying of all the great deep sea opponents I have met.

There are many reasons for this, but the chief one concerns the habits of the fish, which are unlike those of the bluefin tuna, marlins, and other large finsters. Also, the swordfish has a tender mouth that permits the hook to pull out easily. Thus the angler is confronted with the problem of fighting a strong and heavy fish without the assurance that it is securely hooked. This means that the angler must possess fine judgment in knowing when and how much pull to exert.

However, this is not all by any means. The first difficulty is to induce the swordfish to take the bait. Although a few of these fish have been taken by trolling, the most practical method by far is to present the bait to the fish. Now, swordfish generally feed deep or on the surface at night. At any rate, when sighted on the surface during the daylight hours, they do not appear to be feeding, nor do they seem to be interested in any offering of bait. Evidently they are sunning themselves or are seeking the warmer surface temperatures.

Thus, it is up to the angler and his guide to invent methods to encourage the fish to strike at the bait. These methods vary in different parts of the world where swordfish are taken, depending upon the bait fish obtainable in those localities. Squid most certainly is one of the natural foods of the swordfish; although in many localities experienced anglers prefer mackerel.

Although 24-thread line has sufficient strength to take this tender-mouthed fish, I prefer to use 39-thread line because the fish has a pronounced habit of rolling after being hooked. In accomplishing this manoeuvre the fish often succeeds in winding the leader

completely around itself. In such an event it is both possible and advisable to increase the drag or brake and fight the fish with all the strength one can put into it, and the 39-thread line provides a greater factor of line safety.

Many times the swordfish is foul-hooked somewhere around the head or body. This does not aid the angler because the flesh and skin of the adult swordfish is not tough, the skin, unlike that of marlin and tuna, possessing no scales. The reason why the swordfish are foul-hooked so many times is that after they slash at the bait with their broad, flat sword, they roll around and seem to play with the bait, sometimes for as much as five minutes, before they attempt to pick it up.

It has been my experience that less than half of the baits struck by swordfish are picked up by the fish, and a majority of the twenty-three swordfish I have caught have been foul-hooked. In all big game angling history less than three hundred and seventy-five of these fish have been taken on rod and reel. Some anglers have fished broadbill for ten years before boating one. On the other hand, eight anglers have caught two of these giants in one day. I have been lucky enough to boat two in one day on four different occasions—off Nova Scotia three times, and off Tocopilla, Chile, for the fourth time.

The majority of the swordfish I have taken were caught off Louisburg, Nova Scotia, one of the concentration points for swordfish from the end of July until September. Other known concentration points include Cuba, the north-west coast of Africa, Sicily, the Bosphorus, Hawaiian Islands, Japan, and the west coast of South America as far south as Caldera, Chile.

Off the east coast of the United States the swordfish grounds stretch out from 5 to 25 miles south of Montauk Point, Long Island, from Block Island to off Southampton. Although these fish are not as plentiful nor as large in that area as on some of the other grounds, they are very popular with anglers due to the fact that the locality is convenient to large population centres and good angling accommodations are available. The season is from June to September.

Centres for commercial swordfishing do not always mean adequate arrangements for angling, but they do always indicate hope for future angling grounds. For instance, there is a large commercial catch off George's and Brown's Banks, 80 to 125 miles out of Cape Cod, but this is a long run for the average sports fishing cruiser and the weather is apt to be rough. However, some day these grounds will become an angling centre, for the fish are there in large numbers and for a fairly long season, the best months of which are July and August.

Although swordfish are plentiful in Cuban waters, catches between there and New Jersey are only sporadic. In general range, on the east coast of the United States, these fish have been reported as far north as Labrador and are known to run off Newfoundland in August and early September. They concentrate off Cape Breton Island.

On the Pacific coast, swordfish are found as far north as Santa Cruz Island, California, and are quite abundant around the Channel Islands off that State. The California season is from late May to October—sometimes as late as December. Swordfish often are taken off Mexico and they concentrate off Peru and Chile in large numbers. There are without doubt other concentration points, several of which throughout the world are now being investigated and checked by representatives of the International Game Fish Association.

Fortunately, on or near all the better known angling grounds for swordfish there are International Game Fish Association member clubs, or members of this organisation's

International Committee. A list of these member clubs and members of the International Committee can be obtained by writing to the International Game Fish Association, the American Museum of Natural History, New York. The I.G.F.A. chart of records appears elsewhere in this book.

Off Nova Scotia, the east and west coasts of the United States, and the west coast of South America, the swordfish is known only as an adult fish. However, in the Hawaiian Islands, off Cuba, off southern Italy and Sicily, around the Straits of Gibraltar and in the Bosphorus, young are found. Several also have been sent to the American Museum of Natural History from the area around Miami, Florida.

Of the places where young swordfish are taken, the only two known to be spawning grounds are off Sicily, where two Italian ichthyologists, Sanzo and Sella, have studied this fish from the pinhead-sized egg to the adult; and off the coast of Cuba, where free eggs and larvæ have not been taken but where there are young fish and females with eggs just ready to rupture the membrane. Collection of eggs and of the minute larval fish require special gear—the main reason why more have not been found.

The young of the swordfish are very different from the adult. The eggs, deposited by the female in spaced intervals, not all at once, hatch in two and a half days, and there emerges a swordfish of some four millimetres long—a chunky, whitish-yellow object with black specks and no sword. By the time it has reached a length of six or seven millimetres, both jaws are prolonged into slender, fragile swords of equal length, bearing sharp little teeth. The body at this stage is covered with translucent, spikey scales like small, upright thorns rising from a circular base. The head is armed with many spikey projections and the dorsal fin runs the full length of the body.

By the time the swordfish is between 2 and 4 ft. in length the scales have disappeared entirely, as have also the teeth on the sword which now runs out only from the upper jaw of the toothless mouth and has become heavy and sabre-like. There are no spikes on the body and the dorsal fin rapidly is becoming the short, high fin that the angler sights above the water. The colour in fish this size is that of the adult, varying from gunmetal to bronze with silvery underlay and often a silver underside. The fins are dark and rather leathery. The sword is dark. Only the eye is startlingly coloured. It is 3 ins. in diameter and set in a large bony cup, and is a most vivid cobalt blue with a narrow rim of pale blue.

There is a widespread and probably true theory that the swordfish kills its food by slashing with the heavy sword. With this weapon the fish also has been known to attack boats, probably when harpooned or hooked and struggling against being pulled in. It has certainly dragged many men overboard from dories when they have become tangled with the rope on the harpoon dart. I recall on two different occasions, in 1935, commercial swordfishing vessels returning to their home ports with their flags at half mast, indicating a man lost, and later ascertained they were entangled in their own lines and dragged overboard. In more cases than one the infuriated or terrified fish has turned on the boat and with all the strength of its great shoulder muscles has rammed its sword into oak planking and through it.

In some cases the sword is broken off, and once broken it does not regenerate. However, the fish survives such injuries, as it survives other accidents. In a specimen investigated in the Louisburg laboratory a large, heavy harpoon dart was found, entirely healed over, buried deep in the head!

Hooking, fighting, and boating a big swordfish presents a constant challenge to an

angler. The difficulty of locating them and of getting them to take a bait adds to the challenge, as does the possibility of the hook pulling out after a long battle. For instance, my wife hooked two swordfish off the South American coast, fighting one for five hours and the other for seven hours, only to have the hook pull out in each case.

While I have, as I have remarked, caught two swordfish in one day four times, for two years—1945 and 1946—I fished without boating even one. Day after day, from early morning to late at night, I went out in fair weather and foul in cold seas. Several fish failed to take the bait, while others that I hooked got away when the hook pulled out.

One wonders why the sport of swordfishing is so attractive in times of failure. Probably the thrill that comes with taking game that is difficult to obtain has something to do with the persistence with which anglers continue to fish for these great creatures. And the size and weight of this game does not enter into it, as in the case of marlin or tuna. Naturally, the angler hopes to catch a large swordfish, but he is satisfied to take any at all. After all is said and done, it's still a swordfish!

I would like to add, even though it has no relation to the foregoing, that fishing is a sport available to suit all tastes. Throughout the ages fishing has been an outstanding means of sport and recreation, a guide to good health, and an introduction to a better appreciation of the outdoors. There is a type of fishing to fit every need, and each type is enjoyable. Regularly I fish the causeways and piers, sometimes with light rod and reel, and, at other times, with a simple handline, and I can say truly that I enjoy such fishing. The thrill of the strike is there, whether it comes from a small or large fish, and the pleasure that comes from accomplishment is the same, whether the catch is a 5-pounder or a 500-pounder.

TUNAS OF THE WORLD

By S. KIP FARRINGTON, JR.

General

EVERY year around 15th May—and it is so close to that date that you can practically mark the calendar by it—finds the greatest procession in fishdom coming up the Gulf Stream through the Florida Straits. Thousands of giant bluefin tuna, affectionately called the “blue torpedoes of the Atlantic” are on their migratory swim to their beloved summering grounds in the herring and mackerel filled waters off Nova Scotia. Where they come from nobody knows, but a good guess is that they follow the equatorial currents westward hitting the North American coast somewhere south of the Bahama Islands. Many of the fish swing outside of the Bahamas, and it is believed that this run is of even greater proportion than anyone has dared estimate. Rumour has it that they have been seen off the north coast of Brazil well offshore in small numbers, but I have never given it much credence. Two or three single fish have been seen in April, and I know of one that was caught during that month, but the main body to my knowledge has never been reported before the 5th of May off Cat Cay and Bimini, B.W.I., and they have never been later than 17th May. Of course, it takes good weather conditions to sight them, and they may be there for some time before they are actually seen. Every now and then a fish is hooked on the Florida side of the Gulf Stream, but 98 per cent of the fish seem to hug the outside edge all the way north until they start rounding Cape Cod.

They do not tarry long passing the Bahamas; the majority swim at a great rate of speed directly north with the swiftly moving current of the Gulf Stream, which seems to move faster on the east side. On days when the south-west wind is blowing—the best wind to fish for them—they appear to be really flying.

In these waters they are in magnificent shape, exceedingly lean and thin, and with every appearance of having been on a long, hard journey. They are also ravenously hungry and will strike at almost anything, even to small 2-oz. feather lures. The great majority caught weigh from 300 to 500 lbs., with a good sprinkling of 500-pounders, and anyone who has caught many of these magnificent game fish will tell you that the 400 to 600-pounders are the toughest fighters. Very few fish of over 600 lbs. have been caught at Cat Cay, Bimini or Walker Cay. They have also been taken in the Atlantic Ocean on the outside of the last-named place.

Big tunas simply fatten out. Their girth goes up many inches as they get into their favourite food, so naturally the longest fish when he rounds out will weigh the most. The really big fellows, 800 lbs. and up, are much smarter about taking a bait, and that

is one reason we do not catch more of them. To illustrate what I mean: I have taken a 400-lb. tuna off Bimini that measured 8 ft. 6 ins. in length, on 5th June, and, off Liverpool, Nova Scotia, on 25th August, one of the same length weighing 615 lbs.

It was not until May, 1933, when Louis R. Wasey opened his home on Cat Cay, the beautiful island he owns, that this great army of tuna was discovered to pass there on their migration north. For many years anglers had gone over to Bimini, 14 miles north, on the outside edge of the Grand Bahama Banks, to fish for the silver bullet of the flats, the bonefish, or the many reef fish that abound there, and an occasional white marlin had been picked up. On 28th February of that year the writer caught the first blue marlin, and soon after, due to Mr Wasey's efforts, many of his friends and other anglers began seriously fishing the waters. It was somewhere in the neighbourhood of a week after the tuna began striking that the fishermen realised what they were. For the entire season of 1933 none were caught, and the season goes through until about the 1st of July, after which none are seen. In 1934 only one mutilated carcass, chewed up by sharks, was boated, and in the last week of May, 1935, Ernest Hemingway caught the first two tuna, fish that weighed between 350 and 400 lbs., and during the first ten days of June, I took tuna weighing 330, 400 and 542 lbs. These were the only un mutilated catches for that year. In 1936, about three dozen were caught, and from then on the score doubled and trebled each year, so much so that in 1940 during the ten-day period that the annual Cat Cay Tuna Tournament is held, some eighteen boats landed over 300 fish.

The difficulties of catching them were many, the first was that anglers using 24- and 39-thread were not able to hold them at all, due to the fast boring run and the very deep water, which in some places is over 600 fathoms deep. Then, many were cut off in attempting to get them over the drop-off on the outside edge of the reefs where the water deepens. Many more were cut off on the reefs, and still more gained their freedom when other tuna in the schools struck at the line, particularly at the swivels. Many people also believe that the fins of the loose fish accounted for many lines being parted. Then there was always the shark difficulty, which is particularly bad in those waters, although these cowards usually appear when your fish is about tired out, especially if he is down any great depth and you are attempting to raise him.

So the anglers and the guides had to learn the hard way—by experience—and it was soon proved that the 72-thread line which some anglers were using was far too heavy, just as it is for any other fish, and that the fish could also be taken without using 54. With faster boats and better boat handling, they proved that if you chased the tuna very hard you could cut down on the length of his run and the depth to which he would bore down. By eliminating the swivels and double line and taping the connection, the risk of the line being struck at by the other fish was greatly reduced. By only fishing one line astern at a time instead of one from each outrigger the risk of double headers being hooked at one time was eliminated, also the bother of getting one outfit clear of the outrigger and put away after the strike, which enabled the guide to get after the fish that much faster. Feather lures and cold storage mullet, which did away with any scent in the wake, and small strong hooks along with heavy piano wire leaders, prove to be the best when trolling for tuna. Then, due to the all-round speed-up in fighting the fish, the shark nuisance declined. Tackle, including harnesses and chairs, was improved, and most particularly the wonderful Tycoon rod put in its appearance over the angling horizon. This rod, which met its baptism of fire on the blue torpedoes in those tough

waters, was one of the greatest assets to an angler's peace of mind and fighting ability, just as it has been in so many other places in handling various species of large and small fish. Great attention was also given to running the fish inshore, so the fight could take place in shallow water. Once in there a Bimini tuna is no tougher than anywhere else. Due to the war there was no fishing for tuna out of Cat Cay and Bimini from 1942 to 1947, but the annual tournament has now been revived. Today the majority of anglers use 39-thread, although a few still cling to 54 and a few fish have been taken on 24-thread. They troll a fairly long line and put the lure right across in front of the schools which, as in the north, seem to comprise from around a dozen to two dozen fish. One of the grandest sights I have ever seen in the fishing world is to look down through the clear blue Gulf Stream water and see the fish, and they will look even better yet if you can get them in on the green water over the reefs where it is not so many fathoms deep. The colours of the water, the shore line, and the clouds are more beautiful than in any of the places I have fished—a paradise for a photographically-minded man.

Among the grand anglers and sportsmen who have made angling history in successfully fighting tuna in these waters, and who by their efforts have been able to impart their knowledge to hundreds of other fishermen who have visited there to enjoy some of the thrills of the sport have been, besides Ernest Hemingway, Julio and Thorvald Sanchez and Mike Tarafa, three of the great Cuban fishermen from Havana; Tommy Shevlin, Frank O'Brien, Michael Lerner, Ben Crowninshield and John Manning.

Following the Tuna

Let us follow along north with these bluefin tuna. My guess is that they swim so fast that one could easily be off New York in ten days, but at any rate they are never heard of again until a few stragglers are picked up in pound nets on the northern New Jersey coast and Fire Island, New York, late in June. They have never been reported off Cape Hatteras and must be very wide. The same goes for the Virginia Capes, Ocean City, Maryland and the Delaware Capes, which supports my contention that they follow the middle and outside edge of the Gulf Stream. There is practically no rod-and-reel fishing for fish over 200 lbs. off Ambrose Lightship, New York, the Mudhole, or other northern New Jersey hotspots until the last two weeks of August, and these are definitely not the same body of fish. Every now and then a 200-pounder is picked up trolling during the summer, and in some seasons (1936 was the last good one) a few fish up to 600 lbs. were taken by chumming with menhaden via the grinding method with the boat moored to a buoy or anchored. The fish then get in the chum slick, which is made from the greasy mossbunkers, as they are called, and follow it up to the boat. The largest tuna caught off New York was a 705-pounder, taken by Francis Low in September, 1933.

Still proceeding northward with the tuna in late June, we find they are well offshore passing Montauk, and that no rod-and-reel fish weighing over 113 lbs. has been brought into that famous fishing spot. On occasion the swordfish harpooners will iron a tuna of about the same Bahama size, 400 to 600 lbs. They are travelling at such speed it is practically impossible to get close enough to harpoon them, and absolutely impossible to get a bait to them. They know what they want and where they are going—don't think for a minute that they don't—and herring and mackerel are first choice on their menu. The swordfishing fleets out of Block Island, New Bedford, Wood's Hole and Edgartown also harpoon comparatively few, even though they operate out to the Nantucket Lightship,



SWORDFISH (*XIPHIAS GLADIUS*)

NOTE—All fins are erected in attempt to back out after boat has been pierced

and these fellows are masters of their craft—and don't forget that these tuna bring a big price and are also used for canning.

As we reach the tip end of Cape Cod the long silver platoons begin to break rank. Many of the fish take a direct course for Nova Scotia, some cutting the corners of George's and Brown's Banks, while other large divisions follow their leaders around Cape Cod into Massachusetts Bay and the Gulf of Maine. The fish traps in the vicinity of Provincetown, Mass., are the first commercial interests that really get into them. A good many are picked up here, and also in September and October, when many of the fish that have not gone on to the eastward start moving offshore.

The rod-and-reel anglers first begin to catch the big fish off Annisquam, Massachusetts, at the mouth of beautiful Ipswich Bay, only about a forty-five minute run from Boston. They usually hit in here about a week before they do in Maine, and while there have been some phenomenal seasons at Ipswich, there have been a few years where the fish have been scarce and not many over 350 lbs. However, it is off Ipswich that the world's record tuna of 927 lbs. was taken on 25th August, 1940. That is the only rod-and-reel tuna that has been taken weighing over 900 lbs.

All credit for pioneering and developing this wonderful spot, which has meant so much to Massachusetts and her citizens, is due to Ben Crowninshield. Love of the sport, untiring effort and hard work to give his home State a big game fishing ground were his aims. If the fish are working right, and there are not too many north-east storms during August, the tuna should remain in this vicinity from around the 15th of July through to the 10th of September.

One of the most interesting things about fishing here is that the angler is able to fish for tuna in every manner that is practised throughout the world in a twelve-hour fishing day. At daylight he can tie on the mackerel nets and still fish as they do at Liverpool, Nova Scotia. He can then go out and chum by himself while drifting or tied to a buoy as they do in Maine. He can troll all around the bay or outside the harbour mouth and, best of all, he can fish around the fleet of draggers that are trawling for hake a good many days during the summer months. The tuna are very partial to the hake and also love to fatten up on the trash fish the draggers throw overboard after hauling their nets. He can then troll around among the draggers and there are also a good many handliners and harpooners in this fleet, all of whom are drifting. From six o'clock on the tuna start going up the bay and making bow waves so it is possible to chase schools and present baits as they also do off Maine, and then later on, as it begins to get dark, you will get blind strikes while trolling mackerel. Many fish are hooked after dark, and the majority of the boats carry powerful lights to play on the lines. It is possible, and a smart move here, to fish right through until midnight.

Crowninshield, Bob Sewell, Link Davis and many of the other sportsmen who fish this bay have taken tuna weighing over 600 lbs. in the early morning before going to their offices in Boston, and duplicated the trick after leaving work that evening. Dr Leon Storz has also pulled that stunt from his home in Worcester, Massachusetts. All in all, it is quite a fishing backyard that these Boston commuters have, and they are blessed with good weather for most of the season. No fish between 800 and 900 lbs. have been taken here to my knowledge, but Crowninshield has taken four or five weighing over 700 lbs. I have seen three caught from his boat in a morning's fishing. All winds seem to be good except east or north-east.

In 1929, Henry W. Adams, ex-president of the Catalina Tuna Club, after three long

years of hard effort, boated a giant tuna off the coast of Maine. This fish was never weighed, as Mr Adams realised that he would not break the then world's record of 758 lbs. established by Zane Grey at Jordan Bay, Nova Scotia, in 1925. The weight of this fish, however, was conservatively estimated by those who saw it as well over 500 lbs. Mr Adams had also lost two others at the boat after long and arduous fighting.

The news of Mr Adams' splendid catch swept down the coast like the first rush of a giant tuna. At Ogunquit, 70 miles to the south, two men listened with grave attention to the tales that were told. These two gentlemen, Henry Strater and George Weare, were in the middle of their second season of trying to land a tuna on rod and reel off the beaches of this village, where big tuna had been harpooned at their doorsteps by commercial fishermen for many years.

It was not until 1933, however, that Strater and Weare were successful. Three weeks after launching a new fishing boat they took their first tuna, a fish of 233 lbs.

Tuna are still fished for from York Harbour to Biddeford, and in some years over one hundred rod-and-reel catches are made but very few fish over 300 lbs. are brought in. Most of the fishing here is by fast trolling or by attempting to put a bait ahead of a tuna or small schools that are making bow waves.

Mr Adams had fished out of Great Chebeague. He was pretty near the right spot, for not many miles distant is the water in and around Mark Island Gulley, which is situated only about 5 miles from Mackerel Cove out of which sails the fleet of tuna boats from Bailey Island, America's leading port for rod-and-reel fishing for the giant tuna.

In 1937, Dr Leon Storz, one of this country's finest all-round fishermen, brought the first giant tuna ever caught on rod and reel into Bailey Island, and from then on the parade began. Dr Storz had worked hard at the game and continued to do so, and to date has taken over one hundred fish weighing over 400 lbs. in these waters. He trained the commercial fishermen to be rod-and-reel guides and gave liberally of the knowledge he had acquired to all who were interested. The result was that new methods were developed and in the late '30's over three hundred rod-and-reel fish were taken, the largest being the women's world record, an 818-pounder, caught by Mrs Maurice Meyer, Jr., of New Jersey. Anglers went there from this country and all over the world and caught many fine tuna weighing from 400 to 700 lbs. Lou Marron, of Newark, N.J., has been one of the leaders since that time:

For three years preceding the war a very successful tuna tournament was held in which from fifty to seventy fish were killed. And, incidentally, all the fish taken at Bailey Island are utilised, being shipped to the Boston and Portland markets by the guides.

The tuna appear to be travelling east after having turned Cape Cod; they continue across Massachusetts Bay, their longest stop, off Maine, being around the Mark Island Gulley, where they feast on hake before swinging offshore again *en route* to their long summer and fall sojourn in Nova Scotia waters. It is said that few tuna are ever seen along the Maine coast more than 40 miles east of Bailey's.

Angling is extremely interesting on the Mark Island Gulley grounds, because it is practised in many different ways. When the commercial dragger fleet is trolling there for ground fish, a great deal of fishing is done in and among these boats because they are pulling their nets every hour or so and throwing the trash fish back into the water, and the big tuna enjoy this extra dish on their menu with great relish. The tuna fisherman

drifts through the fleet fishing one or two lines at about a depth of 40 to 50 ft. The water in the entire area is from 150 to 200 ft. in depth. Straight trolling at various speeds is also practised with great regularity, usually with a mackerel for bait, at various lengths from the boat, the distance being controlled by weather and tide conditions and how the fish have been acting. This method is popular in the early and late seasons, as is the Ogunquit method of first sighting schools, then going to them with the hope that they can be made to strike. Throughout the height of the season it is not uncommon to sight these surface fish, and you will see boats start up and run out of the fleet whether drifting free or tied to a mooring, not being able to resist the never-ending thrills that come when a tuna's bow wave is sighted.

The Mooring Method

It is from the mooring method that most of the Bailey Island tuna are caught, however, and these grounds are usually determined by commercial handliners (and there are a good many fishing there) deciding where they think they can catch the most fish. These men put over moorings which consist of a buoy on a long line so as to make sure they will get a big swing with the tide, at the same time covering as much area as possible. The moorings are, of course, anchored. The rod-and-reel guides and the private boat owners then do likewise, and I have counted fifty-seven boats all fishing in that fleet from moorings, with eight or ten trollers and harpooners hanging around the outside. A whiting or hake is used for bait and the hook is inserted through the shoulders of the fish and tossed overboard. The desired depth is about 40 ft., and sometimes floats are used to keep the bait at any depth desired. At times live fish are also used for bait. At intervals loose fish are thrown over for chum. The rod-and-reel fisherman when using two rods may easily find himself fast to two fish at once and must be prepared to cut one off if this happens. The outfit should be watched all the time with great care and should be tied into the boat or chair if the angler is not holding them. The strike may be fairly gentle or fairly hard, and if the rod is not fast to the angler it should be left with a very light drag and the click should be left on as a warning whistle. In fact, the click can be left on until you are clear of that fleet of boats so that everyone will know that you are coming out, not that they won't already. It may also help the guide in being able to follow the movements of the fish. The angler will experience nudges when drifting, called "spit-outs"; evidently the tuna has lunged at the bait and missed. Sometimes he can be brought back by stripping the line from the reel, but rarely. The bait is usually mangled.

These Maine tuna really go when they are hooked and, as many of them are in the tough 500-lb. size, they can usually be depended upon to put up a great scrap. Due to the fact that the angler is fishing from a non-moving boat, the speed of this first rush is magnified. The difficulty is also great in getting cast off from the mooring, and the smart fisherman uses a releasing hook which the man who is constantly stationed at the wheel pulls the minute the strike takes place. He then has to figure which way the tuna is going, and both he and the angler, particularly the latter, have to hope and pray that he does not foul around another mooring or another boat. It is amazing how skilfully these Maine tuna fishermen handle their boats and the fish, getting them untangled and then leading them out through the fleet. And when I say "leading," it is just that. It is possible by not putting too much drag on the fish and not getting too close to him to get him out of that fleet of boats and into open water where there is plenty

of room to fight. It probably is in their nature to go offshore anyhow, but it is still a good stunt. Of course, the other boats are all very magnanimous and show good sportsmanship in keeping clear.

The rod-and-reel anglers lose many fish, of course, around the moorings and other obstructions such as rocks that are in the shallow waters of the Gulley. Good fishermen have been known to lose fifteen or twenty fish in two weeks' fishing on these grounds. A lot of these losses are attributed to super-fast opening runs, but I am inclined to doubt it. Three fish have been caught by a rod-and-reel angler off Bailey Island in one day, and every now and then two are taken, but if a man gets one, he has done a good job. But always remember that there would be few fish hooked if it were not for this packed-in fleet of boats that are throwing out such tremendous quantities of chum. The fish seem to come in in waves at certain phases of the tide, and you will see eight or ten boats get strikes that are almost directly in line with one another, while boats just a little to either side do not get a strike. It is my guess that these tuna platoons consist of no more than from fourteen to eighteen fish, probably not that many when they come through. Many anglers like to place their mooring on the outside of the fleet where they will have a better chance of getting clear when they hook a tuna, but my guess is that you will get more strikes in the centre position.

Six hundred to 800 yards of 39-thread line on a 12/0 or 14/0 reel is the correct size. A 14/0 with its larger capacity might prove to be a trifle more advantageous here as it might give you more of an opportunity to get free from some entanglement. A 15-ft. cable leader is long enough and a 11/0 or 12/0 hook is usually the favourite. The rod can suit the angler's fancy but must be heavy enough to take 39-thread line. The same tackle should be used at Ipswich except when trolling, then piano wire leader.

Commercial handlines in this fleet will catch the great majority of fish that they hook, but remember that they are using very, very heavy rope. When the fish hits, they throw over a buoy which usually has a flag fastened to it so that they can identify their own rig, and the fish pulls it around until he is tired out. Sometimes they won't have to throw the buoy overboard and can tend the fish right from the mooring. These men also have the advantage of getting more strikes, as they can fish five or six lines at once, not being encumbered with rod and reel. I have seen one of these tuna at Bailey Island take a flag about 2 miles with just the flag end of the pole showing above the surface of the water and I have seen one completely under water pop out again about half that distance from where the fish was hooked. When the fish are alongside the boat it is nothing to see them run around the surface four or five times, and sometimes they will encircle the man's boat as often.

It is great fun and helps to pass the time away to watch the show. Everyone yells and cheers, and nobody enjoys it more than the commercials. I saw two fellows tend their first fish from a dory amongst the Bailey Island fleet one fine August day, and I know no rod-and-reel fisherman ever had a bigger thrill in taking his first tuna than those two boys did with the methods they were using, and neither one was over 18 years of age.

Bailey Island is the only place that I ever ate lobster, steamed clams and hard blue crabs on a tuna fishing boat. Maine has plenty of things to offer besides her fine fresh and salt water angling.

To be fair to the fish, the place and yourself, try to stay a week, but then, sometimes,

you can do it in a shorter stay. Last year I could stay only two days—I had two strikes and caught a 475-pounder.

The marvellous tuna fishing along the coast of Nova Scotia is easily the world's best, and is successfully practised off five different places. The leading tuna centre is at Wedgeport, where the tuna school is up in the famous Soldier's Rip at the entrance to Lobster Bay, about a forty-five minutes' ride in your fish boat from the dock.

Wedgeport is 21 miles from Yarmouth, where the Eastern Steamship Company's ships from Boston are utilised by anglers entering the Province from the United States. Our friends from Great Britain would land at Halifax, the lovely capital city, and then come down to Yarmouth, a distance of about 250 miles via the Canadian National or Dominion Atlantic Railroad, or over the good automobile roads that are found all over the Province.

Nova Scotia is a sportsman's paradise, as there is excellent swordfishing, pollock fishing and fine angling for trout and salmon. Moose and deer abound. You won't find any better woodcock shooting any place, and there is excellent grouse, goose and duck shooting.

Coming down the coast from Halifax, the first port where tuna have been caught on rod and reel is that famous commercial fishing centre, Lunenburg, 77 miles away. The next one is the attractive old town of Liverpool, 36 miles farther on. This port is a hotbed for tuna anglers during the summer months, and the best fishing in the Province is found there, outside of Wedgeport. Fifty-one miles farther on is Shelburne, another fine place; and going back a few miles lies the hamlet of Jordan Ferry from which anglers leave when fishing Jordan Bay. However, many base in Shelburne, where there are good hotel accommodations, and come around into Jordan, which is the adjoining harbour, in their tuna boat.

Round the Herring Nets

The fishing at all four of these places is done around the herring nets from just before daylight until around 9 a.m., when the market fishermen are through pulling their nets. These nets are anchored at each end, the trip line running to a buoy to which the anchor is tied. So numerous are the herring that they swim into the nets and mesh. Caught by their gills, they are unable to swim forward or back out, hence the name "gill nets." The tuna feed on the herring that fall out; they go from net to net, as each new net is pulled, following the streams of scales constantly being shaken off the netted fish, in the oily slick that oozes from them.

The rod-and-reel angler fishing from a power boat usually fastens to the anchor buoy at the end of a trip line. If in a skiff or dory, he goes directly to the net and pulls part of it over the bow, baiting his hook with a whole herring. A 12/0 hook is plenty large enough, as a small one that can be concealed in the bait is preferable to one which sticks out.

The angler's next step is to attach a cork float to the end of his 15-ft. leader, or as far up the double line as he desires, depending on the depth at which he intends to fish. A small glass lobster pot buoy may also be used for this purpose, as these buoys are tied on with light twine and automatically cut themselves off as soon as the fish is hooked. Although this float is not a necessity, it is usually used, since it enables the tuna fisherman to keep his bait away from the net so that he can let it drift out with the tide. It is, of

course, logical to fish on the outside of the net. If you are fishing way inshore, try to choose a net that has no obstruction between it and the outside edge, in order to give the tuna a small amount of open water and a chance to get between the nets on his first wild rush to the middle of the harbour.

When you are "all set" (and it is better to fish in the chair with your harness on and attached to the reel; although this is only a means of making the rod and reel easier to hold), relax and look to see whether any tuna are swirling around the nets. Your drag must be kept so light that when a fish does strike you will be amazed at what little pull there is on you and your tackle. I hooked a 753-lb. tuna on a free spool when pulling line off the reel. This light drag is a vital necessity, as it helps to keep the tuna on top, preventing him from going under the nets, and—you hope—will make him head for the open harbour.

When you are "on your way," it is essential to take one more precaution. Release what little striking drag you had on the reel and keep it so until you are entirely clear of the nets and well away from the rocky shore—if you are lucky enough to have got that far without having the tuna cut off. Remember this if you ever fish around the gill nets at Liverpool or Jordan Bay—keep just enough drag to prevent the reel from back-lashing. If you start fighting your fish too soon, he may double back into the nets. I have let tuna run for twenty or twenty-five minutes before screwing up the drag and going to work on them.

When the hook is thrown overboard with the bait attached, you watch it fade gradually out of sight, glistening in the cold, dirty water for 15 or 20 ft. from the surface. At intervals of three or four minutes, the guide will throw over one or two loose herring. He will also probably cut up a few and toss them out piece by piece, to help make a slick. One of the best tricks is to keep shaking the nets to get the scales running. The gulls steal a good portion of your chum, but if you don't want to waste all the herring that are in your nets—and it is important to have them there—you can buy more from the market fishermen.

As the commercial men do not work on the Sabbath, the nets are not pulled on that day. Sunday, therefore, is by far the best day to fish and the only one on which it is worth while to stay out all day. With the herring still in the nets, the tuna may be lurking around, waiting for one to fall out. Sometimes you will see a swirl almost immediately, and sometimes you will get a strike just as quickly without seeing the swirl. I saw my wife throw her bait out twice, and each time a big tuna grabbed it before it had settled 3 ft. under the surface. On other days I have fed a 600- or 700-lb. tuna a whole bushel of herring but could not make him take the bait on the hook. The reason, it is very likely, was that the leader wire was glistening in the water. Always remember, by the way, to use stainless cable when deep-fishing for tuna. They will not strike at a trolled bait connected to stainless cable, but the piano wire is much too bright in the dirty water of the harbour.

It is a great sight when the old "busters" boil and swirl around the net. If you see them, a trick which is successful about half the time is to throw out one or two herring, then to pull in your bait and throw it out as if it were a loose herring. I have seen Joe Penny, Liverpool's leading guide, move the skiff around the net to get on the outside and, by using this ruse, make the fish strike. I believe that tuna hit the bait at varying speeds, and you will, I think, get three kinds of strikes. The first is a real blow, when you will hook the fish. The second strike, although equally hard, will not enable you

to hook the fish, and the bait will be either mashed or torn; as a matter of fact, I have seen it cut in half as exactly as if a knife had been used, just in front of the hook, of course. The third strike is just a touch, and in this case I think the fish simply nose the bait or else they have it in their mouths for a second and immediately spit it out; at any rate, the bait very rarely shows a mark. This is also a common occurrence when trolling or drifting for tuna at Wedgeport.

If you succeed in hooking the fish, your guide will get in the bow of the boat with a big knife, which he will use in no uncertain fashion if you get into a net. From that station, he is also ready to lift buoys and trip lines over your head. While it is unfortunate that anglers must contend with the fishing nets, they are a part of the tuna fishing game at Liverpool, Jordan, Shelburne and Lunenburg. If it were not for the presence of these nets, the tuna, in all probability, would not be there; or, if they were, it would not be possible to hook them. The market fishermen do all in their power to help an angler get into the clear. I have seen them lose a day's catch of herring by cutting their nets in two to let one through, and, usually, it is hard to get them to accept reimbursement for their loss. The only tuna I ever lost had but one more buoy to get by, but he clipped it and the line was parted.

There are fine accommodations at Liverpool at the Mersey Hotel, only a minute's walk from the dock, and the fishing takes place only about a twenty minutes' run down a very beautiful harbour.

The conditions at Shelburne are about the same as at Liverpool although it has not been fished as much.

At Jordan Bay the water is very shallow, only 20 to 30 ft. deep in places, and the entrance is so small that very few of the tuna go outside. In 1936 and 1937 six different women caught fish weighing over 700 lbs. in it, which led me to nickname it the "Ladies' Bathtub." However, it is a very picturesque place, and the world's record was held there for about a year with an 864-pounder caught by F. Alfred Kenney, of Shelburne.

Wedgeport

Wedgeport, however, is the great hotspot, and its tuna fishing compares with that for swordfish and striped marlin off the coast of Chile. Although tuna had been taken in the Lobster Bay tiderips commercially for many years it remained for one of the world's greatest anglers, Michael Lerner, to discover and pioneer rod-and-reel fishing in 1935. The following year Lerner was also to pioneer swordfishing off Louisburg. The fishing at Wedgeport is absolutely unique. As many as twenty boats are lined up side by side in the fast-running rip with their motors running at high speed but making practically no headway, so fast is the tide running. The fish come in the rip after the herring and mackerel, and it is nothing to see acres of 500, 600 and 700 lb. fish jumping and playing on the surface while they feed on the small fry. At times there will really be clouds of herring flying out of the water as they attempt to escape the lunges of these bow-waving giant tuna.

The best fishing is at daylight, and it is usually practised until about three in the afternoon, depending upon tide conditions. On slack water the anglers drift down through the rip usually fishing at a depth of about 40 ft. with extraordinarily good results for this type of angling. When the tide is running you will fish two rods if you are expert enough to handle them. The one on the starboard side will be trolling a herring

behind a teaser composed of about fifteen of these fish tied about 6 ins. apart and dragged about 20 ft. astern. The rest of the time this teaser will consist of your cable leader and the hook on the end will naturally have a herring on it that is your bait. Both systems are very effective, depending on how the fish are acting. The other rod will be held by yourself as you sit in the fighting chair, and the line will go to a long pole held by the mate, who will stand up on the stern balancing himself in the seaway, as he skilfully manipulates the pole, thus giving your bait a life-like appearance about 65 ft. astern. This is the only human outrigger so far developed. The line is tied to the end of his pole with a light string which breaks off easily when the strike occurs, then tied again down near the bottom of the pole, then again to the angler's rod at the top of the grip as it comes down from the tip. This three-way safety measure is used to prevent fouling of the line around the guides in the strong wind. The third man in the crew is the chummer; the captain is steering and running the boat, and this worthy throws over a whole herring or a half of one at regular intervals. Finally, when old man tuna shows up you almost always see him take one of the chum far astern. Then the chummer and the pole-man, by skilful and adept timing of their proper amount of bait thrown over, and the handling of the pole, entice the fish up close enough to the boat so that he usually takes the pole bait in place of the loose fish in the water. Once in a while, however, you find a wise one that won't chum. Most of the blind strikes come early in the morning on the teaser baits, and it is nothing to see six or seven boats hook up at once and all leave the rip fighting fish. I saw Dr Storz take three fish there in one morning all weighing over 500 lbs., and Mr and Mrs John Manning (Mr and Mrs Tuna) caught over sixty fish in two months' fishing. Manning caught the second largest ever taken, an 890-pounder, there. The 24-thread record, of 880 lbs., and the 39-thread record, 825 lbs., also came out of that rip, as well as more 700- and 800-lb. fish than any place else.

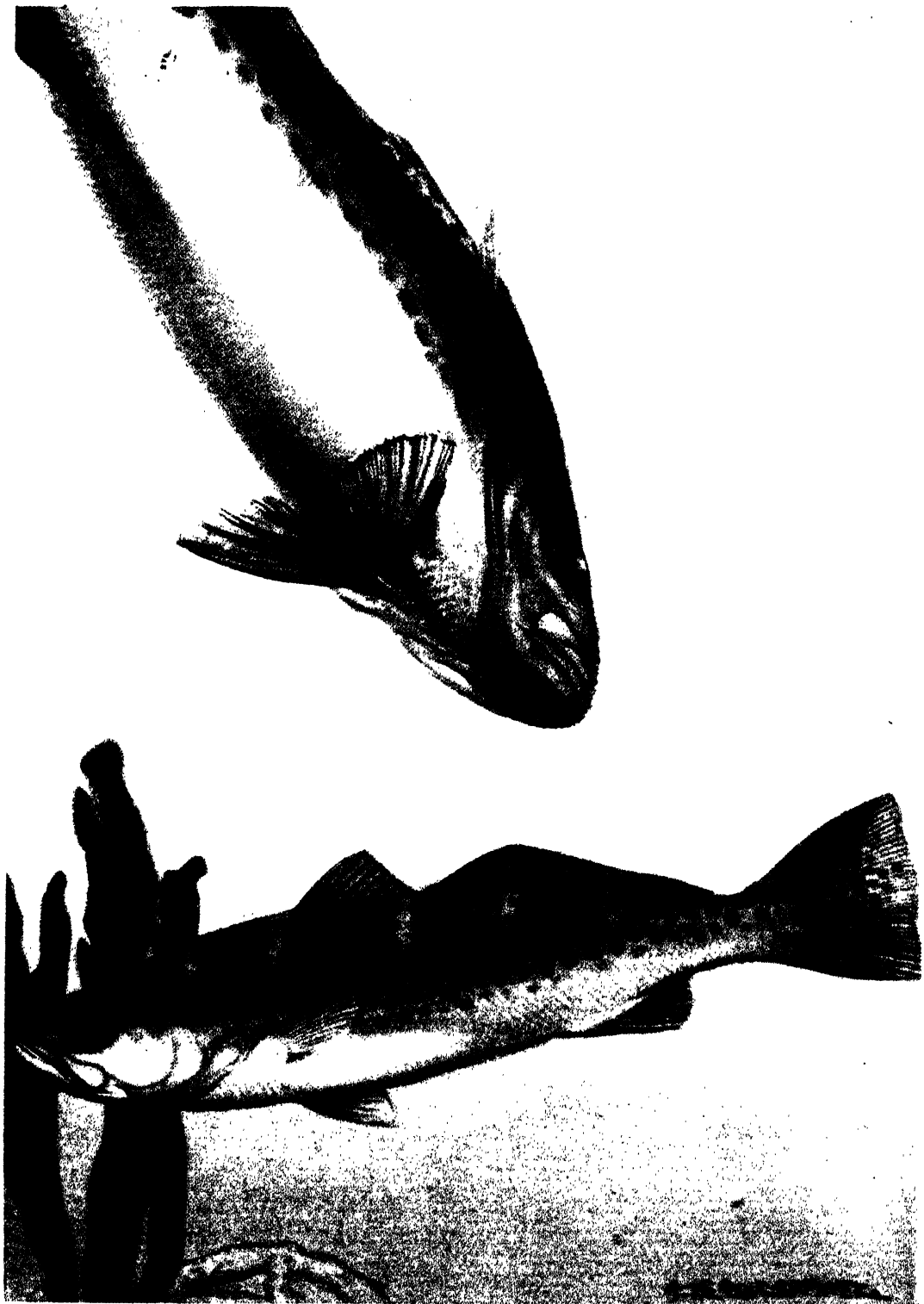
It is most important to have fresh bait and chum, and one or two barrels of chum per boat are usually thrown over every day.

The boats are all fine, seaworthy craft, and the three-man French-Canadian crews who handle them so skilfully have been commercial fishermen all their lives and can find their way all around the Tusket Islands and out in the broad Atlantic in the heaviest fog, as if it were broad daylight. It is here that the International Tuna Matches are held between teams of the British Empire, Cuba, and the United States.

The Rip Tide Inn and the Wedgeport Inn are the best places to stay. The food is good and the hospitality grand both there and in Yarmouth, where it is also possible to stay. For information, write to the Wedgeport Tuna Guides Association, Elson Boudreau, Secretary.

It is the practice in Nova Scotia always to present your tuna to your guide, which is a well-deserved bonus for the crews. During the war they were receiving as much as 40 cents a lb. for them.

12/0 reels filled with 39-thread line and a balanced rod to go with it is the correct tackle to use as it is all over Nova Scotia. Some anglers prefer 54-thread, but it is not necessary. 11/0 hook with No. 10 or 12 piano wire are the best bets and the hooks should be slightly offset. 15 ft. leader and 15 ft. double line is long enough for the big tuna. If you use any longer, it will be a hindrance and not a help. The water is not over 150 ft. in depth and your main difficulties are getting your fish out of the rough and shallow waters of the rip where a few are cut off by obstructions on the bottom and sometimes by floating kelp.



Yes, Wedgeport is TOPS, and to prove it I am listing below my luck the ten days I fished there in 1946.

BLUEFIN TUNA TAKEN AT WEDGEPORT, N.S., SEPTEMBER, 1946

By S. KIP FARRINGTON, JR.

from *Captain Evée Le Blanc's* Canadian Clipper

Date	Weight	Time	Rod	Reel	Line
Sept. 5	608	2 hr. 42 min.	22 oz. Tycoon	12/0 Vom Hofe	39 Ashaway
Sept. 5	640	1 hr. 15 min.	24 oz. Vom Hofe	12/0 Vom Hofe	39 Ashaway
Mrs F. fished					
Sept. 7	770	2 hr. 52 min.	24 oz. Vom Hofe	12/0 Vom Hofe	39 Ashaway
Sept. 8	606	2 hr. 10 min.	24 oz. Vom Hofe	12/0 Vom Hofe	39 Ashaway
Mrs F. fished					
Sept. 10	718	1 hr. 15 min.	26 oz. Tycoon	12/0 Vom Hofe	39 Ashaway
Bad weather					
Sept. 12	566	1 hr. 25 min.	24 oz. Vom Hofe	12/0 Vom Hofe	39 Ashaway
Sept. 13 Lost two					
Sept. 14	725	1 hr. 30 min.	26 oz. Tycoon	12/0 Vom Hofe	39 Ashaway
Bad weather					
Sept. 16	646	1 hr. 20 min.	26 oz. Tycoon	12/0 Vom Hofe	39 Ashaway
Sept. 17	586	3 hr. 15 min.	26 oz. Tycoon	12/0 Vom Hofe	39 Ashaway
Sept. 18	601	2 hr. 30 min.	26 oz. Tycoon	12/0 Vom Hofe	39 Ashaway
Sept. 19	679	1 hr. 25 min.	26 oz. Tycoon	12/0 Vom Hofe	in at 8 a.m.
					With 'Capt.' Richard

Total 7,145 lbs. for 11 fish, averaging 647½ lbs.

18 strikes, 16 hooked, 11 caught, pulled hooks out of 2, broke 1 leader, broke 2 lines in Rip, 2 cut off line wrapping around guides, high wind, unavoidable, fishing 2 rods, 8 fish on all stainless steel wire, 3 on heavy cable, all taken on 11/0 Mustad hooks, herring and mackerel bait, herring chum; 2 on teaser; 2 on bait behind teaser; 1 drifting; 4 chumming; 2 on pole trolling; 12 ft. wire leaders, 15 ft. cable leaders, 15 ft. double line.

MRS S. K. FARRINGTON, JR.

Sept. 9	673	2 hr. 8 min.	16 oz. Tycoon	12/0 Vom Hofe	24 Ashaway
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(This is the Women's World Record for Tuna on 24-thread)

In Soldier's Rip the angler will fight a tuna in every fashion they have been fought today and will find that the tuna will return the compliment to him. You will get fast running fish, sulkers and others that never give up, and most of the latter weigh from 500 to 600 lbs. There have been plenty of five- to seven-hour fights with this size fish at Wedgeport with the anglers using 54-thread line.

The majority of tuna are hooked in the corner of the jaw, and that is a tough place on the angler. If the hook works through and happens to drop to the outside, he will be in for a doubly long battle. If the fish is hooked in the upper or lower jaw he will be handled much more readily, or if the hook is in the roof of his mouth the white flag will be run up earlier, particularly if the hook is lodged down in his throat, which, however, rarely happens.

It is much easier to handle and kill them with the cable leaders than it is with the piano wire leader, which is a necessity at Wedgeport because it does not appear to bother the fish much when being fished off the pole.

Another fine thing about the Wedgeport fishing is that so many tuna fight on the surface, not only making fast runs but staying right on top within 200 or 300 ft. of the

boat and smashing the water with their tails. My 830-pounder was on the surface more than two hours of the 4¼-hour fight.

I think one of the greatest virtues of this wonderful fish is that they can be caught by fishermen of little experience. If a man or woman stays cool and listens to the guide, with any kind of luck they ought to be able to get the fish.

In this they are entirely different from broadbill swordfish and the major marlins. I do not rank him with those worthies but I certainly rate him the third greatest game fish in the world and a thoroughbred all the way through.

I also do not believe there are as many tuna in the oceans of the world weighing over 1,000 lbs. as there are swordfish, black marlin and blue marlin, but I do believe there are more tuna weighing from 500 to 900 lbs. than any of these species. It has been my observation that when a tuna gets around 900 lbs. he is pretty nearly the top. There would be more taken commercially, if not by rod and reel, if they were larger in comparison to the number of smaller ones.

I do not believe that any of the tuna that the British sportsman finds in the North Sea have any connection with the tuna runs on the east coast of America and that any of our fish go over there upon leaving Nova Scotia. My guess is that the fish around the British Isles come up from the Mediterranean. Probably many of our fish came from there, too, originally, or off the African coast coming south instead of north.

There appear to be very few bluefin tuna off the Pacific Coast. The only ones I know of today are a few tiny school tuna that show up every now and then around Catalina and the Channel Islands, where, incidentally, the first tuna ever taken by rod and reel were captured by the late C. F. Holder in 1898. Holder founded the historic Catalina Tuna Club, our cradle of big game fishing, and it may interest the readers to know that the first marlin was not taken until 1904, and the first swordfish in 1913, at Catalina Island.

The largest tuna ever brought in there weighed only 251 lbs., and naturally the tuna meant an awful lot to the Catalina members, and many of them spend much time and money in pursuing fish that do not weigh over 100 lbs., and many of them half that size. They also still fish with a kite, a system that they enjoy, and it is about the only way to get the fish to strike in those waters. Many of the boats do not have outriggers there as well.

The old timers at Catalina tell many stories about the schools of giant tuna that used to pass through their waters, smashing up their tackle; however, they were probably just some of those "Fierce Five Hundreds" as John Manning calls them at Wedgeport, or else they were the crack Allison tuna which are also not in evidence there nowadays.

The scientific name of the bluefin tuna or tunny is *Thunnus thynnus*, and, incidentally, a great honour was conferred on me when I was elected a member of the British Tunny Club; and I hope in the not-too-distant future to fish on the Dogger Bank and have the pleasure of meeting some of the fine anglers and sportsmen that I have not yet met in other parts of the world. In Nova Scotia this fish is nicknamed Albacorde; off New Jersey and New York they are the Horse Mackerel, but call a bluefin tuna what you like, small or large, he is still the blue torpedo in every ocean that he swims.

Before going into a little discussion on the baby members of the bluefin family, called school tuna, I will quote, from Francesca LaMonte's wonderful book *North American Game Fish*, her description of this fish. This book is filled with lovely plates and is

the finest thing ever done on salt water fish, filling a much-needed field, and it should be in the pocket, creel, and tackle box of every fisherman in salt or sweet water.

Fran LaMonte, who is editing this section, knows twice as much about fish as any other woman in the world and there is no man living who has anything on her either. Incidentally, she carries the extra burden of being secretary of the International Game Fish Association, the governing body and clearing house of salt water ethics and records throughout the world.

BLUEFIN TUNA

“Distribution: Atlantic: north to Hamilton Inlet, Labrador. Rare off Florida. A big run passes Bimini, B.W.I., in late spring or early summer. Present in quantity from approximately July to October from Long Island, New York, north to the Wedgeport-Liverpool district of Nova Scotia; present in some quantity off Newfoundland in warm, dry summers. Concentration areas within our limits are Casco Bay, Maine; Ipswich, Massachusetts; Montauk, New York; Block Island, Rhode Island; and the Wedgeport-Liverpool area, Nova Scotia. Pacific: north to Oregon, not common north of Point Conception, California. Large ones have not been as common in recent years on the famous grounds off Catalina Island, California, as in years past. Season is May to December.

“Colour: The whole fish is iridescent, particularly on the back and cheeks. The top third of the sides and head, across the back, is steel or very dark greenish or greyish-blue; the rest of the body is greyish-silver. There may be other markings, such as lighter dashes or a broad yellowish or purplish stripe at the lower margin of the blue on the sides. The fins are dusky, with tinges of blue, yellow or green; the finlets are yellow or yellowish, edged with darker.

“Distinguishing Characters: Finlets following dorsal and anal fins. Pectoral fin much shorter than the head length from the snout to the back of the gill cover. The entire body is scaled. There are small conical teeth in the jaws and fine teeth on the roof of the mouth. Dorsal fins are close to each other. The flesh is pink, sometimes rather greyish.

“Size: This fish grows to a length of 14 ft. and a weight of 1,800 lbs. Its average weight varies with locality, from 60 or less to 200 or more lbs.

“Food: Smaller schooling fish, such as flying fish, mackerel, herring, menhaden, etc.; squids.

“Habits: Travels in large schools; migratory. Often a very disturbed swimmer, jumping around and thrashing the water. Temperate water, going with currents of warm water to very northern latitudes. Coastal after spawning.”

School tuna are abundant off the east coast of the United States from Ocean City, Maryland, to Cape Cod from June to October. These fish will run from 10 to 100 lbs. It is true that tuna weighing from 100 to 300 lbs. are called “school tuna” in Nova Scotia, but a 100 pounder is a good catch in the States. Thousands of anglers fish for them every summer and charter boats running out of Ocean City, Maryland; Cape May, Atlantic City, Beach Haven and Brielle, New Jersey; Sheepshead Bay, Freeport, Hampton Bays and Montauk, New York; Block Island, Rhode Island; Edgartown, Massachusetts; Stonington, Connecticut, and other New England points take them by the hundreds. This is real big game fishing for many people, and thank the good Lord that four or five

people are able to split a boat, share the expenses and get a taste of it. In many of them the seed is planted for bigger game.

These little fish look just like their elders, make amazingly fast runs, particularly the opener, and, like that of their big brothers, no attempt should be made to stop them. Keep that drag off until they have slowed down.

Ninety-five per cent of these fish are caught trolling, but a few of the New Jersey and Freeport boats sometimes chum them up and they also get in the slicks when they are trying for big fish on Barnegat Ridge, off Seabright over the Mudhole, and at Ambrose Lightship.

The little tuna when in the mood will strike at almost any lure put over; and when not in the mood—and this is about one-eighth of the time—apparently nothing will make them strike. The usual procedure, and the correct one in school tuna fishing, is to troll rapidly, at 8 or 9 miles an hour, with a very short line—the length of a 15 ft. leader is sufficient—keeping the white feather, by far the most effective bait, within the white water raised by the propeller, as this white water is the chief attraction for these fish. Some captains have chrome-plated their propellers as an additional flashing lure. To disturb the water still further, a keg, fender, or the very large teasers are often towed close behind. The water, disturbed in this way, brings the tuna up very close and the angler fishing a very short line will catch many of these little speed demons. It is always hard to make beginners believe in the effectiveness of these tactics, and particularly in that of using the short line, though this practice is accepted by all the successful tuna fishermen and guides in northern waters for taking fish of this size.

A 9/0 or 10/0 hook is large enough and a 10-oz. tip with a 6/0 reel filled with 900 ft. of 15-thread line, is about right for the beginner. The expert may use 6/9 or 3/6. You will find both extremely sporty, but where it is a simple matter to fish four or five rods at once, the man who tries very light tackle risks making himself unpopular with his fishing companions. Though he may catch tuna, he usually succeeds in keeping others from getting their share of the fish while he continues his long drawn-out battles. And he may even be the cause of losing the school which, in most cases, continues to follow a hooked fish.

Observation has led me to the conclusion that small tuna act in three different ways. First, they may be biting furiously; you catch them from schools you may not even see, and many blind strikes are made.

Second, the schools sighted are rippling the surface; the fish are not jumping, rolling or feeding. When you circle them, make certain you do not run them down and you will find that they strike at once. By keeping a hooked fish swimming behind the boat, you will be able to arouse the whole school and keep it there. The chances are that nine times out of ten you will catch all the fish you can possibly use. I have seen guides hold a school for miles by this manoeuvre. If keeping a hooked tuna astern does not work, try bleeding a fish into the wake, also put blood on the feather. This may draw sharks but will probably hold the tuna as well.

Third, the tuna may be jumping, breaking water, or playing on the surface. In this case, they are either feeding or have just fed, and your troubles begin. I have stayed in schools all day long, tried every jig that is made and all the different baits; I have varied the length of the line, have run fast and run slow, but to no avail.

There is only one thing to do under these circumstances that I know of and that is take any kind of small metal shiny jig, the smaller the better, and tie the jig to the

leader, which should never be over 6 ft. long for these tuna. Put the boat as close to the school as you can and from the top of the cabin cast the jig as far out as possible and into the midst of the school. Then reel in fast and repeat the procedure. You should be rewarded with a strike within ten casts. As your hooked fish comes into the wake, some of the others usually follow and fishing begins in earnest. When acting in this way, tuna are feeding on small fry and bait in the water. A small metal jig is a better imitation of this food. The fish are more afraid of the boat when they are surface feeding and usually go down immediately. Yes, there are not many days during summer months when the well guided school tuna fisherman does not get all he wants of them on the grounds mentioned herein.

Yellowfin Tuna

There are a few yellowfin tuna in the Atlantic Ocean but not many. Some small ones have been picked up at Bermuda, but there are acres of them in the Pacific, and the California commercial fishermen follow them as far south as Peru. It is nothing for the commercial interests to catch over a hundred million lbs. of these fish a year fishing with live bait. There are now very few on the California coast, but they are abundant along the Mexican and Central American coast where they are taken the year around. They prefer much warmer water than their cousins, the bluefin, and are easy to distinguish because they have a pectoral fin which is as long as their heads and sometimes slightly longer. They are very beautiful, being brilliantly iridescent, and have a bright golden stripe that extends along the side of the body from eye to tail. They are supposed to reach a weight of 500 lbs., but there are very few over 200 lbs.

They feed on many more types of food than do the bluefin, and they love flying fish, sardines, lobsters, squids, etc.

There are more yellowfin tuna off Tocopilla, Chile, than in any other waters, where it is possible to catch them on rod and reel. From December to June they are present in very large schools, and the number one item on their menu is sardines or other small fish. The larger yellowfin, however, prefer a diet of small squid. Their weight runs not infrequently in the neighbourhood of 100 lbs., and W. E. S. Toker, an outstanding British fisherman, holder of the world's swordfish record, and pioneer of those waters, believes that if anyone started to chum for tuna off Tocopilla he might very well catch many in excess of that weight. The record for Tocopilla waters, held by Fritz Utz, is 135 lbs., but unfortunately not many anglers fishing there have the time to stop and bother with them.

The yellowfin tuna is also taken in the Red Sea, Indian Ocean, Dutch East Indies, Hawaii and Japan. I have caught him in the Marianas and three widely separated points in the Philippines. It is my own belief that the majority of tuna caught by members of the Great Britain and United States armed forces in the south-west Pacific during World War II were yellowfin tuna. However, there was a great tendency among the men to call all the members of the bonito family that were caught "tuna."

Like the bluefin, very little is known about where they spawn, and I believe their fighting qualities, pound for pound, are about equal. This fish will take lures trolled behind boats at speeds from 6 to 8 knots and is particularly partial to feathers and bone jigs. As a food fish, I believe that yellowfin is definitely superior to the bluefin, both in the can and out. A certain strip can be taken from the belly of both species and if properly prepared is exceedingly tasty. Many people do not know this, being of the

opinion they are only fit for the table when served from a can. All in all, he is a wonderful fish. We are lucky to have him.

Allison Tuna

We have kept the most beautiful and, from my experience, pound for pound, the hardest member of this family to fight, for the last. The Allison tuna was named after James L. Allison, who donated the Miami Aquarium to that city.

This tuna is sometimes also referred to as the "long yellowfin tuna" because of his long flowing second dorsal and his long anal fin which sometimes reach out beyond his tail. There is a theory that this form is merely a growth stage of the yellowfin tuna. This theory I do not agree with at all because plenty of Allison tuna are taken up to 100 lbs. with this lovely characteristic in both oceans, while the true yellowfin has been taken up to 500 lbs. He is, however, one of the three most beautiful fish I have ever taken—the dolphin and the Pacific striped marlin being the others. The yellow colouring of their fins and finlets is indescribable and the blues and silver on the sides of their bodies are equally so. As for pep, they have more of it, not only in the water but in the cockpit as well, where they die harder than any other members of the family.

In April, 1944, Michael Lerner, co-operating with the War Department, sent the well-known Miami guide, Captain Eddie Wall, to the Ascencion Islands to see if he could help augment the food supply for British and American troops stationed there by getting them to catch more fish. There were lots of small fish, but Captain Wall was amazed to find more Allison tuna than any place else in the Atlantic, with many of them running very good size, around 200 lbs. Quite a few small ones have been taken in Bermuda weighing up to 75 and 100 lbs., and every winter during January and February about a dozen of these wonderful fish are picked up by the sailfishing fleet from Long Key, Florida, to Miami. Many more would be taken if they were actually fished for, but they do break up plenty of tackle. Three or four are picked up every year off Cat Cay and Bimini; in fact, some of them seem to follow the bluefin tuna during the first ten days of June.

It was on these grounds that one of the greatest pieces of luck in my fishing career befell me on 9th June, 1935. The middle of a very hot flat June morning found me fishing deep, drifting off Bimini Harbour mouth. My wife was watching the two outfits and I was half asleep in the chair when the 36-thread line with which I was fishing for marlin snapped loose from the outrigger. The guide pushed me out of the chair and I grabbed the rod from its holder to strike the fish six or seven times, grumbling all the time about one more damn shark. As I started to pump, however, I realised the fish I had hooked was not fisherman's enemy No. 1. At the same time I was sure that it was a small fish. I pumped him up hard in a very sloppy fashion and was not fully awake until I heard my wife yell, "Good God, if he hasn't got an Allison tuna." Curious as to what species of fish this one would turn out to be, she had been looking over the side and down into the crystal blue water. Instantly things began to happen. The mate, Doug Osborne, got the motors running while my wife rushed around cleaning up the cockpit. Here I was fast to a long-wanted but never-expected fish. I had never dared hope to catch one in the Atlantic. A minute later the guide drove the gaff into him, and when in the boat, that little fellow (he weighed only 96 lbs.) proceeded to take charge of the cockpit and do all of his real fighting there. He went into flurry after flurry and ended up by almost breaking my leg with his tail as I tried to hold him down so that he

would not be ruined for mounting. We took him in swimming with us when we went ashore about five hours later, and it was certainly a wonderful treat to look at him from under water. This Allison tuna was the second of his kind caught in the Bahamas and, as far as I know, the sixteenth taken in the south up to that time. They have been picked up as far north as Ocean City, Maryland, in the summer time.

The Allison tuna has not shown up yet off the California coast to my knowledge but is particularly abundant off Cape San Lucas, Mexico, and has been caught off Acapulco. South of that I have not heard about them, but I would like to bet that he will be taken off the coast of Ecuador in the near future.

The Allison is the number one fish to catch in the Hawaiian Islands, and there his native name is "ahi," which means "ball of fire," and that is certainly the best thing he has ever been called, as it describes him both as to colour and temperament. The best fishing spot for him out there is off the beautiful village of Waianae from Barber's Point to Kaena Point, about 20 miles, and it was over these fishing grounds that the Japs flew on the morning of 7th December, 1941, to remain hidden by the mountains until they arrived over Pearl Harbour, about 22 miles away.

The world's record Allison tuna, a 265-pounder, was taken by James Harvey while fishing off these grounds, and Mrs Charles M. Cooke III holds the ladies' record with a 184½ lb. fish taken there. The commercial men have taken them up to 500 lbs., however, by flagline fishing at a depth of about 30 fathoms. I can think of no greater fishing thrill than to catch one of this size, but it is only on rare instances that they fish deep for them off Honolulu with rod and reel. Incidentally, you fight them off Waianae in water that is more than 500 fathoms deep.

During the twenty-three days I fished in Hawaiian waters I can remember no ahi caught by an experienced angler in less than 35 or 40 minutes, and the majority ran over an hour on 39-thread. Mrs Farrington fought one that would have gone well over 250 lbs. for two hours in one of the stiffest battles I have ever seen her wage, and she lost the fish at the boat when the leader wire broke in my hand. I had swum over from my own boat to that of Dudley Lewis, the great Honolulu fisherman.

They usually use lightweight piano wire as it gets more strikes, and most of the fish are taken on various types of Hawaiian feathers that the resident fishermen like to use.

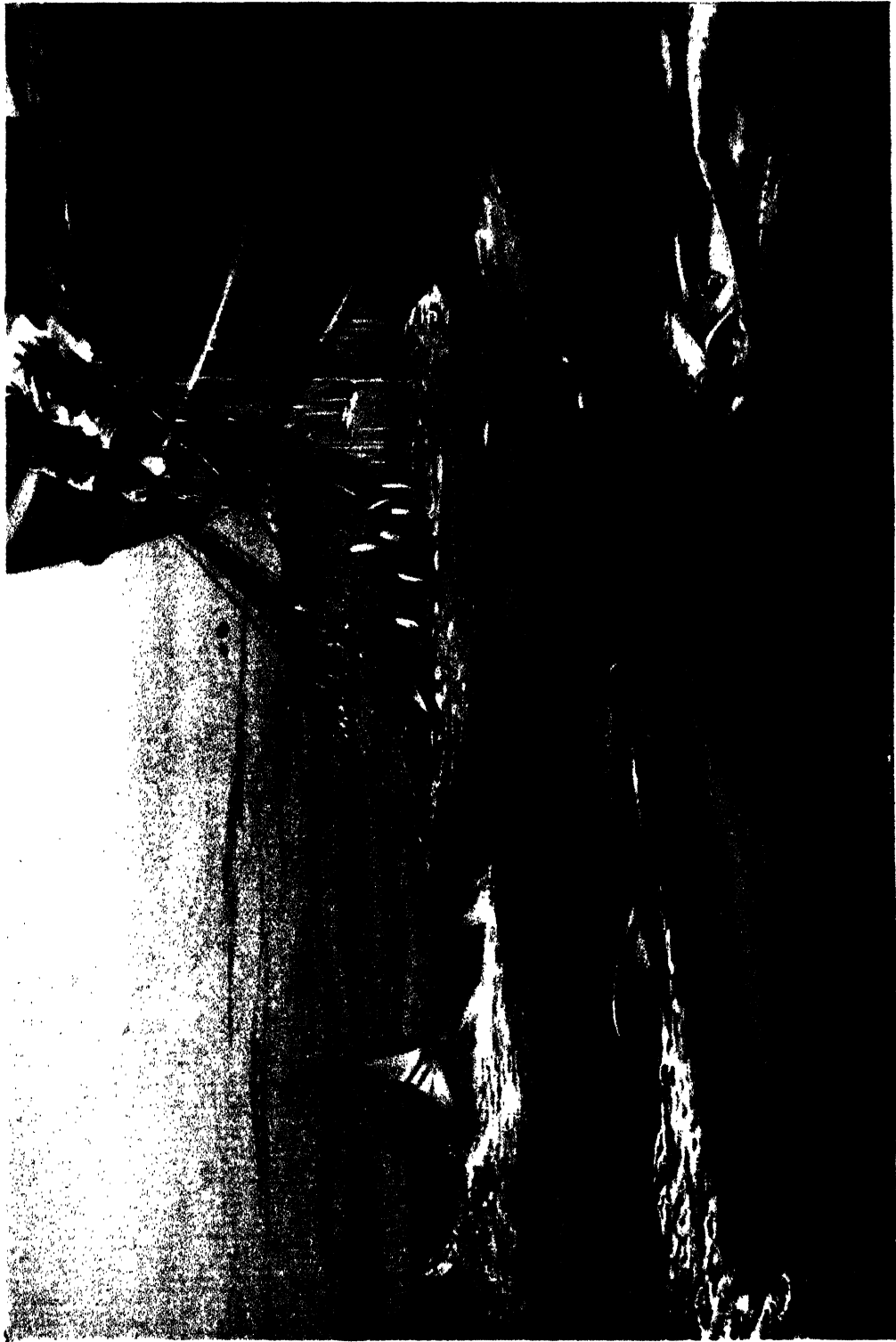
The battle they put up on 39-thread is simply amazing. This, I believe, is the correct size of line, with a 12/0 reel and a 20- to 22-oz. rod tip—at least until you have caught a couple, for they are not easy to hook. You don't get strikes every day, and after making a 2,200 mile trip you will want to make good your chance. After you have caught one or two, I would suggest that you drop to 24-thread.

You will see school after school of them, rolling, jumping, playing, and feeding under the tuna birds, whose presence is normally a dependable indicator; but a fast boat is required to catch up with the ahi before they go down. The percentage of strikes you will get for the number of fish you see will be small, but at times you will get blind strikes. Hooking double-headers is not uncommon, although they are seldom boated. I believe you will improve your chances if you are ready with the rod in the gimbal and harness attached to the reel, awaiting the strike. The run is so fast and the fish bore down so rapidly in that great depth of water that it is difficult to get the rod out of the holder and yourself into the chair unless you are ready with everything. If other lines have to be brought in or taken out of the way, the fish is often so far out before the boat can be turned to go after him that a broken line is sure to result.

These fish are also great swivel and bubble strikers, so it is a good idea to eliminate double line and swivel.

To illustrate what these fish will do off Mexico I quote the following from a letter received on 24th April, 1947, from an American fisherman, who was working out of Acapulco: "I never got hold of such a scrapper in all my life. We sighted a school of sardines and my skipper immediately figured there should be some fish feeding on this school, and pretty soon we saw a school of yellowfin tuna leaping and we headed towards them. I hooked and landed a nice little one of 40 lbs.; I then threw my line in again and bang, bang, my partner and myself both had strikes. The skipper thought my partner had the best fish and started to help him work on it. I knew I had a good fish, but did not realise what I was in for. My partner's yellowfin was boated within thirty minutes and then, after changing fishing chairs, we went to work on my fish. I fought that fellow for four hours, and the guide said: 'Surely that fish must be dead by now,' but I told him that if I had hold of a dead fish it was the most lively dead fish I have ever been tied into. I drank a bottle of Coca-cola and took an aspirin tablet and stayed with that fellow until nearly 7 p.m., by which time there were two boats out in the ocean looking for us, and we did not get back to Acapulco until after 9 p.m. and I was too dog-tired to care what that fish weighed or measured, but after weighing him the next morning after being out of the water for nearly twelve hours he weighed 175 lbs. and measured 5 ft. 6 ins. The fish was fought on 24-thread line, 12 oz. tip and a 9/0 reel."

The first man to take an Allison tuna in both the Atlantic and Pacific was Robert P. Honeyman, and it was my good fortune to be the second angler to do so. I fully agree with Mr Honeyman, who used to go to Honolulu every summer, that these little tuna are "Some fish"—in any waters where you may find them; and I trust that all the readers who have struggled through this long narration on tuna will have an easier fight when they go fishing for them and will get all the quantity and quality of the three different species they go after.



TARPON AND BONEFISH

By VAN CAMPEN HEILNER

The lordly tarpon (*Tarpon atlanticus*) is one of the oldest and most popular and reliable of big game fish.

He who fishes for tarpon can always be assured that the fish will put on a spectacular performance regardless of its size. From the baby fish that sportsmen catch on fly rods along the Tamiami Trail in Florida to the great giants of the Panuco River in Mexico there is never a dull moment.

Tarpon are found in the open sea, in the mouths of harbours and rivers and way up the rivers themselves.

Originally developed as a game fish in Florida the best time to take them there is in June, while it would seem in the Cuban rivers and in Mexico, March to April is better. The Tampico Tarpon Tournament is held in March but this writer has also found them plentiful there in late May.

Tarpon, the largest of the herring tribe, are taken by trolling, with spoons, feathers and other artificial lures, fly casting and plug casting, and still-fishing with crab or cut bait. In some localities they bite best towards evening or at night, yet in one Cuban river the author could not get the fish to strike before nine in the morning nor after three-thirty in the afternoon.

The fish run in size from the baby fish of a pound or so taken on flies to the great giants of Mexico in the 200 lb. class.

As soon as the fish seizes the lure he rushes to the surface and bounds high into the air, shaking his head from side to side in a frequently successful effort to dislodge the hook. I have seen baits thrown great distances through the air and have a motion picture of a spoon being hurled at least 50 ft. from the fish's mouth. They will continue to leap until utterly exhausted and are frequently brought to boat in a half dead condition due to the tremendous leaps and gyrations through which they have gone.

The mouth of this fish is extremely hard and it is frequently difficult to set the hook.

Favourite fishing places for the tarpon are along the Florida Keys, the rivers of the west coast of Florida, Aransas Pass in Texas, the Panuco River near Tampico, Mexico, the rivers of Central America to the Panama Canal. I believe an effort was made to tow a freight car full of live tarpon through the Canal from the Atlantic to the Pacific side but so far as I know nothing ever came of it.

All the harbours of most of the West Indian islands have fish and there are a great many in Cuba, Haiti and Puerto Rico. I have seen some tremendous fish in Havana harbour right under Cabanas Fortress—in fact one over 200 lbs. was taken there on a handline.

Although all the world's record fish have, curiously enough, been taken in the one place, the Panuco River about 10 miles upstream from Tampico—fish of 240 lbs. and over—

it is the writer's opinion that more and perhaps larger fish exist in the Mexican rivers of the Isthmus of Tehuantepec flowing into the Gulf of Mexico. A friend who fished near Ciudad Carmen told the author he had never in his life seen so many tarpon, or *sabalo* as the fish is called in Spanish.

No matter where you encounter him nor under what name, the great Silver King will give you memories you will cherish for the rest of your days.

Bonefish (*Albula vulpes*)

This remarkable fish which occurs in warm seas all over the world is probably pound for pound the fastest thing with fins.

A small fish, averaging 3 to 5 lbs. but probably reaching 20, after it is once hooked it displays such a burst of speed that all who take them for the first time are left open mouthed.

I have had bonefish on their first run take out over 200 yds. of line and have been powerless to stop them.

Essentially a light tackle fish—about 3/6 tackle is ideal—they are fished for in very shallow water—so shallow that at times the backs of the fish may be seen protruding above the surface as they work their way in across the flats with the incoming tide.

The trick is to find a place which schools have been using, go there at low water and anchor your boat and wait for the fish to come in with the rising tide.

Shrimp, crab and conch make excellent bait and it is well to have plenty of ground-up conch as chum, to throw out and stop the schools as they pass.

Fish are usually in schools but often large solitary fish may be seen, and some of the largest fish I have ever seen were alone or in pairs.

Where fish can be seen in shallow water, stalking them is another favourite method with many. If you can correctly judge in which direction the fish is travelling, wade as close to him as you can and cast far enough ahead so as not to alarm him and chances are when he comes up with the bait, he will take it.

In the past few years it was discovered that bonefish would take moving baits such as plugs and squids and quite a few experts have been taking them fly casting with large salmon flies.

Bonefish are extremely nervous and suspicious ("superstitious" my Bahamian guide said) and will take flight at the slightest noise or even at the shadow of a cloud passing over the water. For this reason extreme caution and patience must be observed and at some times it is best not to speak above a whisper.

I have seen a knife dropped in the bottom of a boat put an entire school to flight although they were a 100 ft. away.

The favourite grounds of the author have been the Florida Keys below Miami, the banks of the Bahama Islands, especially the west coast of Andros Island, and the north coast of Cuba (where the fish is known as *macabi*).

For many years the world's record was a 13½ lb. fish taken at Bimini in the Bahamas but this has since been exceeded. I believe a 20-pounder will some day be taken.

No matter in what part of the world you fish for him the bonefish is such an amazing fish to catch that the experience of even taking one will make you an addict forever.

DORADO AND OTHER FISH OF THE RIO DE LA PLATA

By LEANDER J. McCORMICK



IN the vast Plate system that debouches where Buenos Aires and Montevideo face each other across a far-flung estuary, there swims a magnificent golden fish, the dorado, whose game qualities are little known to dwellers in northern climes. Yet there are few fish so bold and gallant, or capable of giving an angler such a nerve-tingling battle.

The dorado stands at the head of the South American branch of the characin family, since it is the largest representative in that continent, and in fact is only surpassed in size among characins by the Goliath tigerfish of the Congo, which belongs, of course, to the African branch. I have set forth the origin and distribution of the characins in the chapter on tigerfish, and need not further comment on the extraordinary terrestrial gap that separates the two groups from each other.

There are four varieties of dorado: *Salminus maxillosus*, *S. brevidens*, *S. hilarii*, and *S. affinis*, but I am only considering here the first of these, which occurs throughout the Paraná and Uruguay Rivers wherever the water is to its liking. The fish is remarkable for its colour, which is a soft gold shade, but still of a brilliance that is quite dazzling—something difficult to characterise and beautiful to see. Its scales are moderately large and of uniform hue, though there are some darker series of scales, running along the body in dotted stripes, that lend additional vivacity to the basal tone. The fins of the fish are a fine vermilion, except the tail, which has a black horizontal bar passing through its centre. From this bar the tail blends through gold in the middle to scarlet at the outer edges. The tail is emarginate in shape, but is usually much worn away in mature specimens.

If this splendid fish has been neglected by the rest of the world it has by no means been overlooked by the anglers of the Argentine and Uruguay. Buenos Aires is the headquarters of the Federación Argentina de Entidades de Pesca Deportiva, an organisation comprising twenty-six fishing clubs, including the select Asociación de Pesca en los Parques Nacionales. Besides these there is also the small Dorado Club with a predominantly British membership. It is thus possible for the visitor to put himself quickly in touch with angling enthusiasts, and the prospect of excellent fishing, if he arrives in Argentina at a suitable period of the year.

The season for dorado varies according to where one fishes. It may be said to start at the beginning of spring, about the 12th of October, in the Delta—a few miles up stream from Buenos Aires—and continues there until the 25th of May. It is in October that the "hot water" fish—the dorado, the bôga (*Leporinus obtusidens*) and the surubí (*Pseudoplatystoma coruscans*)—put in their appearance among the innumerable

anastomoses of the Paraná. To get to the Delta one can motor in half an hour to Tigre or one of the other small towns on the banks of the Tigre or Luján Rivers where a launch, with an accompanying rowboat, may be hired; and from there one threads a way through small channels to a suitable fishing ground. Often the angler tries for three sorts of fish at the same time, putting out several lines variously rigged, and with different baits. The dorado line will be baited with a live mojarrita, hooked just behind the dorsal fin. A float permits the fish to swim 3 or 4 ft. below the surface. The rod will be a light spinning, or an American bait rod; the reel should be of the type of a "Silex," or a Pflueger "Supreme." The most satisfactory line is braided nylon of 20-lb. test, such as the "Ashaway." Between the hook and the line there should be a foot of piano wire leader (trace) with the usual swivels. The surubí line is fished on the bottom with a live bôga, or a sábalo (*Prochilodus platensis*) for bait. One does not pay much attention to this line until it begins running out. The record weight for a surubí in the Delta is 154 lbs. Further upstream it is excellent eating, but in the Delta it is apt to have a muddy flavour and, like all big catfish, though powerful, it does not put up an exciting battle.

Bôgas are well-proportioned fusiform fish with rather large silvery scales. The best way to get at them is to cut a couple of holes in a sack of corn, and drop it in the river at a likely location. In a day or so this ground bait will attract numerous bôgas. One then fishes near the sack with a No. 6 hook (English No. 9) baited with a piece of ox heart, or water snails, or mussels. A float is necessary so as to keep the hook just off the bottom. The bôga is considered the second best sporting fish of the river. It attains about 15 lbs., and offers the angler a satisfactory and interesting fight, on rare occasions vouchsafing a jump or two.

Finally, if there is a youngster aboard, he can be kept busy catching mojarritas for bait. There are a great many moderate sized fishes that go under the general name of "mojarrita." For the most part they consist of small varieties of characins, of the sub-family Tetragonopterinae. Thus a delightful day can be spent at the Delta with plenty of sport, and good eating at the end of it.

For those who wish to confine their angling to dorado, careful selection of promising places, beside lily pads, or in the vicinity of submerged tree trunks, should bring a crashing response from the golden fish. Dorados always prefer fast water, however. Generally they lie in riffles, particularly above a rock, or where there is an obstruction to the flow of the stream. In such spots one must be on the alert for a violent strike. In the Delta one will not come across large dorados. How they happen to be there at all is in fact a mystery. The life cycle of the fish is as yet unknown, but in any case one cannot expect to capture them much above 10 lbs. until one has travelled considerably farther up river, where it flows over a rocky bed, and where sand replaces the muddy deposits of the lower Paraná.

I am indebted for the above details concerning the fishing in the Delta to Señor Pablo Bardin, who is one of the leading anglers and authorities on fish in the Argentine. He tells me that from Buenos Aires the nearest good fishing for large dorados is about 250 miles away at Salto Grande on the Uruguay. Ascending the Paraná there is nothing important until one reaches the Piedra Negra (Black Rock) about 30 kilometres north of Hernandarias, and 718 kilometres from Buenos Aires. Señor Bardin is of the opinion that the largest dorados of the Paraná are to be secured near the island of Cerrito, opposite the leper colony, above Corrientes. In that vicinity the record dorado of 50.6 lbs. was taken by a commercial fisherman, and duly authenticated. This island is at the junction

of the Paraguay and Paraná Rivers, where the season is at its best towards the end of July and in early August, though in some years the water does not clear sufficiently until September.

Apipe, between Corrientes and Posadas, is perhaps the most productive of all locations on the Alto Paraná for dorado. At that point the river is split by a large island, and there are two rocky ledges so disposed athwart the course of the main stream as to forbid the passage of ships with a draft of more than 4 ft. Dorados gather there trying to negotiate the fast water, or resting after having done so. But aside from the fishing, Apipe has little to offer, and if one is going that far it is perhaps more amusing to voyage considerably farther and try the sport in less circumscribed surroundings.

My own fishing took place much higher upstream. I had travelled to Asunción in Paraguay with the intention of visiting that charming land, and of organising from there a modest expedition up the Alto Paraná. In Asunción I was distracted from angling by the extremely interesting bird shooting. In the Chaco there were two kinds of tinamou, almost exactly equivalent in size and habits to English partridges and pheasants, and then there were flocks of cotorra parakeets, which one could massacre by the dozen with a single barrel; all of these made excellent eating. In addition, ducks and waterfowl in the neighbouring marshes swarmed in unbelievable numbers and varieties. At Asunción there was actually only one short stretch of the Rio Paraguay in which dorados could be easily secured. This was below the Liebig meat packing plant, where the fish congregate to feed on the offal discharged from the factory, but I refused to associate with such low-bred scavengers. Instead I began negotiations to charter a boat at Posadas on the Alto Paraná. Eventually I was successful in getting the *Iris*, a trim little 52-ft. launch, fitted with an enclosed cabin capable of sleeping three. For angling purposes there were also two canoes, which were to be towed behind the launch. I had invited two young Britishers to come as my guests, and there was a crew of five half-breeds. In this launch we voyaged altogether some 600 miles, taking twenty days for the trip at an inclusive price of 160 pesos a day—the peso being at that time 2.40 to the dollar. Considering that we did not stint ourselves in any respect, it can be seen that such an expedition is not a ruinous affair.

Posadas, on the Argentine side of the river, is the terminus of a railway line to Buenos Aires which connects by ferry with the Paraguayan railway to Asunción on the other shore. It was there that I purchased the stores necessary for the trip, and from there we embarked on the 24th of October. It was early spring, the river should have been falling since July, and by November would normally have reached its lowest point, but it was still very high. For several days before leaving I had been occupied arranging final details, and between times angling among the islands in the vicinity of the town. Using a trout rod in the shallows adjacent to likely sandbars I enjoyed excellent sport fishing with a wet fly for small dorados of about 1 lb. each. One could hardly ask for a prettier or gamier little fish, though when of that size it is too bony for eating purposes. It is curious that this was the only occasion on which these small dorados were encountered, though during our subsequent voyage we were frequently in appropriate water. With two companions I also tried one day for larger dorados, casting a spoon with a Leonard rod which I have found ideal for river angling. This rod, which was sold me for striped bass fishing, is considerably shorter and lighter than those usually employed in surf-casting. It measures 8 ft. 9 ins. over all, and weighs 15½ ozs. The butt is 28 ins. long and the top 6 ft. 5 ins. The joint in this rod is fitted some distance above the butt so that

it is impossible to determine the weight of the top, but I would say that it is somewhat stiffer than the 6 oz. top of a tarpon rod. The convenience of this rod lies in its short length as compared with regular surf-casting rods, which are clumsy to handle in small boats. In addition, it has sufficient strength to make a long cast with a fairly heavy lure, as is necessary when fishing for dorado. The rod is really too powerful, however, to get the ultimate sport out of playing the fish, but one cannot have one's cake and eat it. I would therefore recommend a rod of this type for anyone contemplating dorado fishing. My reel was a Vom Hofe No. 2/0, with 12-thread cuttyhunk line. We failed to catch any dorado that day, but a commercial fisherman assuaged our chagrin, explaining that the river was still too high, too cold, and too yellow.

A few days later we began our trip. With the sun shining brightly and the air balmy, we stretched out in deck chairs on top of the superstructure and sipped gin-and-tonic—a drink on which one can always rely in South America. The river along which we were proceeding had considerably changed in character from what I had seen on my way to Asunción. Though it was still flowing through the narrowing alluvial basin of the Paraná, it was approaching an elevation of more than 100 metres. Already it had gouged out a channel, between banks that rose here and there to a height of 60 ft., down through an immense red sandstone cap rock to a much faulted bed, over which it poured in an irregular and confusing manner, sometimes with rapids and whirlpools, at others in glassy glides. The width varied to about a mile at its broadest, and the water was of the usual *café au lait* colour one expects in all great rivers. On both sides the shores presented a wild and untidy appearance. There were no stands of uniform timber, nor in fact any noteworthy trees of respectable size.

That night we tied up at Isla de Toro, 1,624 kilometres above Buenos Aires, and made our initial attempt on dorado. We soon found that there was much to learn about this fishing. Isla de Toro is a huge black rock that cuts the river into unequal parts. On one side the water flowed in great volume and at an increased pace, on the other there were sandbars and shallows that looked uninviting. We began casting various spoons into the deep water, with no success at all. It remained for my friend Peter Richardson to save us from a blank day. Peter, I must explain, was a complete neophyte, he had an ungainly long rod, and this was actually the first time he had ever tried casting. I had given him some instruction, and had then left him to his own devices. Without knowing quite where to go, he wandered off to the other side of the island, and was shortly calling for assistance. Hurrying round I discovered that he had made a cast upstream, where in my estimation no fish should lie, and had managed to snarl his line in a terrible overrun. After a while I found he could reel in over the tangle, and in doing this, to my amazement, he hooked a dorado. Though his reel fell off, and he himself fell into the river from sheer bewilderment, he was able somehow to land the fish—a fine 9-pounder. We took this lesson to heart, and thereafter never neglected the upstream side of rocks. That evening we had the dorado for dinner; it proved most delicious, with a firm, pale pink flesh that was both delicate and tasty.

Our plan for this trip was to travel steadily during most of each day until we got to Puerto Mendez at kilometre 2050; we then intended to return in leisurely style, stopping at any spot that seemed particularly favourable. Thus on our way up, which took eight days, we contented ourselves with fishing only at the end of our scheduled run.

Isla de Toro turned out to be a point of demarcation in the river. From there onward cultivation was no longer in evidence along the banks, and scarcely any habitation,

though every few miles we would come to small landing places on the Argentine side, generally connected with a dusty track leading back into the interior. The river itself was now much narrower with a width of between 1,200 to 1,600 ft. on an average; in some places, however, it would shrink to only 450 ft. The vegetation was becoming wilder still in form. Here and there patches of Tacuara and Tacuapí, varieties of bamboo, would offer delicate pale green relief from the scraggly and undistinguished surrounding growths. During the second day we saw several flocks of large parrots, and a few ducks would fly past, never within gunshot. That evening we anchored at Tabay Alves, where my companions, baiting with meat, caught three horrible looking catfish of about 10 lbs. each, called *bagre sapo* (*Rhamdia sapo*). They proved to be edible in spite of their bloated, revolting appearance.

The following day we reached Caraguatay, situated in the vicinity of an extensive yerba maté plantation managed by Charles Benson, an acquaintance of mine. On the way we navigated two of the alarming stretches of the river where submerged rocks and ledges create whirlpools, rips, and counter currents that seemed quite irrational considering the depth of the channel. Antonio Zarza, our captain, would swing the launch about in a series of manœuvres to avoid the worst of these, but whether he did this to impress us with his skill, or whether there was any point to his evolutions we were never able to ascertain. Benson was famous as one of the most expert dorado anglers on the river, and he invited us to fish with him on our way back. He told us that the river was 8 metres above its normal level for that time of year.

We stopped the next evening at Arroyo Nacunday. During the day we had again seen many parrots, and in the river one of the giant otters (*Pteronura brasiliensis*) of the country. These otters, by the way, are really big. They have been reported up to more than 7 ft. in length, including the tail. Locally they are called *lobitos del rio*, or little river wolves. Close to our anchorage we were entertained as night fell watching a numerous family of carpinchos, the largest rodents in the world, busily feeding on aquatic plants. The following day we reached Puerto Aguirre, a short distance up the Rio Iguazú, where the boundaries of Paraguay, Argentine and Brazil all come together. We went out that night after dinner, and with electric torches located great numbers of sábalo in a small bayou. With our nets and gaffs in half an hour we captured no less than 28 of them, weighing about 1 lb. each. These are mud-eating fish with very small mouths and bright scales, in form resembling the American bonefish. We did not know, of course, that they were practically inedible, and of no value to an angler except as bait for big catfish. They were not all wasted, however, as we traded off a dozen of them to an Indian in exchange for a young goat. Our meat supply was exhausted by this time, but we found the goat to be even less edible than the sábalos, which is saying a lot. I must add that we were able on several occasions to barter our fish for milk, eggs, or chickens, the natives having small regard for money, but a great appreciation for no matter what kind of fish we offered them—even the awful *bagre sapo* had a ready market.

We went ashore the next morning and motored 15 miles through a virgin forest, that in its beautiful abandon left us breathless, to the famous falls of Iguazú, one of the objectives of our trip. These falls are among the most spectacular and exquisite in the world. The crest in an irregular series of curves extends to a total length of about $2\frac{1}{2}$ miles but it is divided by islets into thirty-eight separate cascades, of every variety in formation and size. Some descend in silvery sheets the entire vertical distance, while others are broken and shattered on intervening platforms, leaping down in two or more

stages amid veils of spray spangled with rainbows. The main fall, however, is 800 ft. wide, and drops a sheer 210 ft. in a single overwhelming wall of golden water. During the wet season these falls exceed even Niagara in volume. At the base of the falls there is good dorado fishing to be had in late November, and this is also, I have no doubt, a regular haunt of the mysterious manguruyú (*Pseudopimelodus zungaro*) which we were to fish for later.

On our return to the main stream we anchored at Foz do Iguassú and, while waiting for the Brazilian customs inspectors to clear our boat, put in our time fishing for salmón criollo (*Brycon orbignyanus*). This first-class game fish, belonging to the characin family, has a neat streamlined body covered with bright scales. In form it resembles a fresh water perch, though it lacks, of course, the spiny rays of that fish. Salmón grow to a weight of about 10 lbs. They have a firm, flaky, and pinkish flesh of an excellent flavour. Near the little broken-down wharf there were several youths throwing out handlines baited with oranges to catch these fish. It is curious that we observed no other natives engaged in fishing throughout our entire journey. They were amazed when they saw us casting, and would cry out, "*Que lindo !*" (How beautiful!) when one of us put out a particularly long line. In the end we managed to land a couple of these salmón weighing about 2 lbs. each, but we had to descend to pieces of orange for bait before we got them. If we had only known it we might have had better sport and more success using trout rods and fairly large wet flies, as these fish are reputed to take a fly readily. It was indeed one of the grave disadvantages from which we suffered, and also one of the chief charms of the expedition, that we found ourselves in the position of angling explorers. We knew in theory what tackle to use for dorados, but we did not know where to look for them, and of the other fish in the river we knew nothing at all. We had no idea what they might be, what baits to use, or what methods to employ. In this single instance we saw men fishing, and if we had not seen them we would never have tried there. The water seemed unremarkable. It was slow flowing, and moderately deep. Fifty yards out there was a sandbar, in between this and the sloping, sandy beach of the shore the water attained a depth of about 15 ft., displaying to our eyes a fishing ground as unprofitable looking as a bathtub. Why the salmón gathered there we had no means of imagining, though it may have been to feed on the refuse discarded by boatmen in the little port. I must say that in preparing for the expedition I had not been quite so ingenuous as I must appear, but I was relying on a broken reed. Among our crew I had been at great pains to hire a half-breed, named Pedroso, who was reputed to be a fisherman, and who had made a similar expedition with Major J. W. Hills about ten years before. It had taken little time to discover that Pedroso knew nothing about angling, nor scarcely anything concerning the fish of the river. His sole virtue was that he could paddle our large canoe, and at this he was indefatigable, if also extraordinarily inept. It was just as well that he proved so willing: we had brought with us an outboard motor, but the canoe was so flimsy it could not withstand the vibration. This was a serious handicap, as it greatly limited our range of fishable water.

At last the customs inspectors arrived, and, after a minute examination of everything we had on board, seemed satisfied that we were not smugglers. There remained still some daylight so we decided to try for dorado. I went out with Pedroso in the large canoe, but the water appeared nowhere satisfactory. Along the shore downstream there was a fast run, not more than 4 ft. deep. In my opinion it did not look likely, but so as to be doing something I began casting a Wilson No. 5½ spoon. About the twelfth



cast I got a heavy strike. It was a dorado all right, but it proved a disappointment as it gave only three jumps, and I had it in the boat within five minutes. It had been lightly hooked in the tongue, and I was lucky to have landed it at all. The fish was in excellent condition, even its tail showed no marks of wear. The male dorado can be distinguished from the female by the rough rays in his anal fin. My fish was a female, probably about ready to spawn, as her girth was so bulky. I presume that this circumstance accounted for the feeble battle she gave me. Since this was my first dorado I took pains to record her dimensions which were: length to end of tail $32\frac{3}{4}$ ins., girth at largest point $24\frac{1}{2}$ ins., weight $25\frac{3}{4}$ lbs. I was amazed at the size of her head, which was $9\frac{3}{4}$ ins. long, and also at her huge mouth. This mouth was a veritable cavern. It was fringed with a continuous series of short triangular teeth that were sharp and strong enough to inflict a dangerous wound. Subsequently we discovered that the jaws of dorados are extremely powerful, so much so that the teeth would score deep scratches and furrows on our heavy metal spoons.

Until this day our launch had behaved admirably, but when we left Foz do Iguassú we began to experience trouble with our motors. They were missing and coughing in sickly fashion, and this was all the more disturbing since we were entering one of the worst stretches of the river, renowned for its *correderas* and *remolinos* (rapids and whirlpools). About four o'clock we pulled into the bank to see if we could not get the motors running better. After some tinkering our engineer felt it was safe to proceed, but we had no sooner reached midstream than the motors gave a final cough and stopped. We were then in a situation that has accounted for shipwrecks and the loss of many lives in that river. The launch was out of control and drifting broadside at considerable speed straight for some menacing rocks. Captain Zarza was in a daze, while Pedroso was howling to all the saints in Heaven to preserve him. Luckily Peter kept his head, and sent Pedroso out in a canoe with a rope. Somehow he managed to snub it round a rock, and brought the *Iris* to rest in the nick of time. After this unwelcome adventure we landed and began fishing along the rocky shore. Peter caught a small dorado, and I had a terrific battle with a large one. This was very different from my last, and typical of all the dorados that are in good condition. At its first rush it took out 70 yds. of line, heading across and downstream with tremendous power. It was impossible to follow it down, and I had to hang on and play it as best I could from where I was. The dorado in the meanwhile was jumping madly in the strong current, and shaking its head like a rattle to get rid of the hook. At last, after twenty minutes, I managed to coax it into a little backwater. It looked as if it were about dead, but just then Pedroso rushed at it clumsily with the gaff, and scared the fish so that it gave a ridiculous little jump and the hook came out.

On returning to the launch I found that my other companion, Jock Atkinson, had landed a fine pacú (*Colossoma mitrei*) of 10 lbs. This is another fish belonging to the characin family, and a splendid one, that grows to a considerable size—we caught one later weighing 30 lbs. In shape it resembles a pompano, being roundish in profile, but considerably compressed laterally. The pacú differs from the dorado in that it is largely herbivorous, its teeth being formed for chewing rather than for seizing and tearing a living prey. Like other fish of its general shape, the pacú puts up a stubborn and interesting underwater fight. Its flesh is white, firm, and tasty, containing few annoying bones, and altogether providing an excellent and abundant dish on the table. A peculiarity of the pacú is its fondness for fresh fruit. It especially hankers for oranges. Subsequently, whenever we saw a wild orange tree by the shore we would bait a hook with a whole

orange and let it float downstream. It was astonishing how often we could catch pacús in this unorthodox manner.

Our engineer worked all through the night on the motors to such effect that they gave us no further trouble for the rest of the trip. This was just as well since we still had to negotiate the *remolinos* and *correderas* of Santa Teresa, and even more formidable, those of San Francisco. We continued steaming that day until the middle of the afternoon when we finally reached Puerto Mendez, the goal we had set ourselves, at almost exactly the latitude of the tropic of Capricorn. We began fishing immediately, and in a short time I hooked and landed what turned out to be the largest dorado we got. This was a female that had lately spawned. She was in poor condition and only weighed 30 lbs., though she measured slightly over 41 ins. to the extremity of her tail. This fish was thoroughly undeserved. I had made a bad cast into some deep, still water, and got an overrun. When the overrun had been disentangled I started to reel in and then hooked her in a spot where no dorado should lie. She put up a very mediocre defence.

Tackle

For this fishing we had brought with us a large assortment of spoons. Some were wide and short, others long and thin; they were also of many different colours. We found, however, that the most effective were the No. 6 or 7 Pflueger "Record," or corresponding Al Wilson spoons. These spoons have a single hook which can either be fixed or allowed to swing free. We liked the hook in the fixed position best. For colour we preferred the silver spoons, but we had good success with the bronze as well. My favourite of all, however, was one painted blue on the convex and bronze on the concave side, measuring about 6 ins. in length. I have already mentioned the tremendous strength of the dorado's jaws. They are not comparable in this respect with those of the tigerfish, and the interior of the dorado's mouth is also much softer and easier to penetrate than in the tigerfish. Nevertheless, a big dorado often clamped down so tightly on the spoon that if the hook had not caught in the flesh we could not strike hard enough to imbed the barb. Of course we were unable to observe what happened, but we guessed that the dorado held on to the upper part of the spoon with a bulldog grip and, having discovered that the lure was not a small fish, would simply let go and thus disembarass itself of an undesired mouthful. To overcome this disconcerting tactic we later added a short hook, with a large gape, at the head of the spoon, and in this way were able to reduce substantially the number of fish that got away after the strike. The leaders we used were of piano wire, such as is employed for tarpon fishing, about 4 ft. long. Sometimes we would insert an extra swivel or an anti-kink lead half way along the leader to gain flexibility. To the lower end of the swivel between the leader and the line we attached leads of commensurate weight for our rods, varying the leads according to the strength and direction of the wind, and the distance we desired to cast. The leads were fastened to the swivel with a light piece of string so they would break off easily if they became caught in an underwater obstruction. Because of the extremely irregular and rocky nature of the river bed, an important item of equipment for this angling is an otter. That is: a small board fitted with split-rings so devised that the fishing line can be run through the rings. With practice one learns to manipulate the otter in such wise that it is often possible to retrieve a hook caught on the bottom with remarkable ease.

Through a friend at Asunción I had arranged to take a little side trip from Puerto

Mendez to view the falls of La Guayrá. This entailed a four-hour train ride behind a diminutive wood-burning engine through a forest in no way differing from a tropical jungle. The village of La Guayrá is the headquarters of the Compañia Empresa Maté Larangeira, an enterprise so vast and farflung in an almost uninhabited region that it had taken on the character of an independent feudal state. The manager of this company was a Yankee Quaker, and we soon found out that he was receiving us as honoured guests to whom every courtesy was to be extended without charge. Shortly we were conducted in a Ford car along a rugged track to the falls. The entire Alto Paraná at this point was squeezed through a gorge only 200 ft. wide, plunging with a thunderous roar over a series of giant steps at terrific velocity. There was a footpath leading down the gorge and below on a sandbar the pugs of a jaguar could be clearly discerned. Nearby our guide led us to a little bay, surrounded by rocks, in which he said we could catch manguruyú. We had often been told of this fish by Pedroso, in this instance displaying profound knowledge by which we put little store. With baited breath he would murmur, "Manguruyú!" at points where the turbulence of the river had reamed out of the confining cliffs a small bay or *remanso*. An enormous fish, it seemed, was the manguruyú, "*Muy grande*," he said, and Pedroso would stretch out his arms and his eyes would bulge slightly for emphasis.

We had no tackle with us, but the next morning we bought some large hooks, and half a dozen balls of blind cord at the company store. For bait we had several kilos of raw meat. I must say that we were not expecting much in the way of results. Arriving at the falls we decided to fish in the *remanso* near where it joined the river. In a short time my companions had found suitable positions and prepared their tackle. I continued farther. My ball of blind cord was about 40 yds. long. Having attached a hook, I put on a piece of meat the size of an apple and heaved it in. At this moment I heard shouts from my friends. Quickly tying my line to a rock I rushed back and found them considerably perturbed. It appeared that Jock had hardly got his bait in the water than he saw his line running out. He thought it was the current perhaps that was carrying off the bait, but he soon knew he was mistaken. In a moment he realised that there was a fish on the other end, and he could not hold it. He called Peter to help. Their position on the rocks was precarious, and the line went out cutting their hands, almost at once they had to let go, and the fish proceeded majestically away with bait, hook, and line. I told them that they should have fastened their line to a rock, and feeling pretty smug returned to my own position. I was too late! Only a yard of my line was still firmly fixed to its support, the rest was gone. I was preparing some fresh tackle when further shouts from my friends brought me back. Peter this time had lost his line to a fish which had broken him when it had reached the full length. I hurried to where my line was secured and again found it missing. This was no longer a joke. The whole *remanso* seemed alive with monsters. What made the affair so eerie was that the smooth surface of the turbid water gave no indication of anything stirring below.

This time I decided to try strategy. I found a large tree limb and attaching it crosswise 15 ft. from the hook floated it out. It swam beautifully and circled slowly in the slight current. Suddenly it began to move the wrong way. I put a strain on the line, but this had no effect. The tree limb disappeared from sight and the line ran out just the same. I braced myself against a boulder and hung on with a handkerchief to save my hands. But I had to give line, and with only 40 yds. I could not give much. I put on more pressure, and when only about 10 ft. were left decided not to yield any more. I might as well

have tried to hold the *Queen Mary*. There was a sharp crack and the line parted above the tree limb. I never saw it again. I went to join my companions and was told that our last line was also broken. We had to abandon the fishing.

That afternoon we journeyed back to the *Iris*. Across the track scuttled large iguanas; over our heads flew blue and red macaws; in the trees monkeys screeched and toucans squawked; purple orchids glowed expensively amid the dense foliage of the jungle. It was all very fascinating, but I was thinking about manguruyú. When we reached the launch we tested a piece of our blind cord and found that it broke, dry, at 91 lbs.

We were not yet finished with manguruyú, however. I had some big game tackle with me and made up my mind that next time we found suitable water I would go after it in a manner befitting the fish. Downstream we shortly came upon a quiet bay, and I put on my body harness and baited a swordfish hook. On this occasion I had to wait about twenty minutes, but then I got a bite. There were about 600 yds. of line on the reel; I could be generous and let the fish have some of it. After 60 yds. had been taken off I slapped on the brake, but in spite of this the fish kept straight on its way, cruising along at about five knots in an unconcerned and infuriating manner. This was getting serious! I took to the canoe and we followed the fish into the turbulent fast water. It was hard enough even to hold our position, but at last with two paddling we managed to make some progress upstream. Then we discovered that the line was fouled, and after frantic exertions had to cut it off and lose 50 yds. This was our last experience with the mysterious manguruyú. We had lost seven lines testing to more than 90 lbs., and had not even seen a fish. Subsequent investigations revealed that it is a giant catfish with a huge head and an immense mouth. Nobody knows how big it grows. It has been reported up to 200 lbs., but I am inclined to believe that those which toyed with us must have exceeded this weight, if only from the tremendous power they showed in breaking our lines without the necessity of fast swimming or rapid manœuvres.

After these disastrous experiences we started south for Posadas. With the current behind us we could have covered the whole distance in twenty hours, but we had eleven days at our disposal and could indulge in dawdling. We tried several times more for manguruyú, but Jock was the only one to get what he thought might have been a bite. We concluded that this fish is only likely to frequent slow deep parts of the river in the vicinity of waterfalls where numerous small fish stop through inability to go farther upstream. We were concentrating, of course, on dorados, and only put out lines for other fish at odd moments when the launch was tied up, or to relax from the strenuous exertion of dorado fishing. Nevertheless we caught several fresh varieties. Among them we had three surubis, one of them weighing 32 lbs. This fish has a huge spatulate snout to which are attached long feelers. Its body is bare of scales, but it is strikingly marked with white stripes like a zebra. Another variety of surubí is spotted instead of striped. We found the flesh excellent, having somewhat the consistency of a sturgeon's. The large one was caught bottom-fishing in deepish, still water with half a salmón for bait. We also captured several fish called patí (*Luciopimelodus pati*) weighing 2 or 3 lbs. Considering that these were also bottom-living fish, their bodies were exceptionally well streamlined. They had pointed snouts, with feelers almost as long as themselves. Again there were no scales. Superficially the patís looked in fact like baby mako sharks, their skins being a pale bluish grey. These fish were also good to eat, the flesh was delicate and white, though without much flavour. Besides the manguruyú, the surubí, the bagre, and the patí there are a great many other varieties of catfish in the Paraná such as the manduví

(*Ageneiosus*), the mandubá (*Pseudogeneiosus*), and the mocholo (*Pimelodus*), that we failed to encounter. The catfish (Nematognathi), which range throughout most of the fresh waters of the globe, belong, according to Norman, to one of the two great sub-orders of the Ostariophysi, the other sub-order contains the carps and various allied forms, including the characins. Like the characins, many catfish have an adipose fin; almost invariably they are carnivorous, though the biggest of them all, the plā-buk of Indo-China, is thought to be a vegetarian.

In addition to these catfish we caught several bôga, without the benefit of ground bait. They are a pretty little fish resembling miniature tarpon, and good to eat. We also got some palometa (*Mylossoma sp.*) of less than 1 lb. each. These fish are compressed laterally like the pacú. They belong to the characin family, and though rather on the small side make into a nice dish if one can secure enough of them. We had refrained hitherto from bathing in the river on account of the famous man-eating fish, the piraña. Instead we used to take bucket baths on the poop deck. One particularly hot day, however, Peter stripped and announced he was going in swimming, "Pirañas, or no pirañas." He was about to dive when Jock pulled in a small fish. Yes, it was a piraña. I have seldom seen anyone change his mind so quickly as Peter did. In the chapter on the Amazon I have described fishing for pirañas and will not comment further on it here. The variety caught by Jock was probably *Serrasalmus nattereri*.

Until the day that we left Puerto Mendez our party had accounted for only five dorados between us, but now we were going to rally for a serious attack. We were still ignorant about where to try for the fish, but in general we had concluded that nothing lay in the deep water of the main stream. We had determined in any case to fish from the banks wherever possible, since it is more agreeable, and the fish has a better chance to escape if it cannot be followed in a boat. Whenever, therefore, we found a stretch of rocky shore, if the nearby water looked favourable, we would land and begin casting, after the manner of salmon fishing in Scotland, across and slightly downstream, carefully covering all the water from close in to far out before moving down two steps and repeating the procedure. We could not perceive in the yellow, cloudy water what the dorados were doing. In fact it amazed us that they could see our spoons at all, but they could all right, and their response was always forthright. They never fumbled, or came short, or sheered off from the lure as far as we could make out. We never got what is called a "touch" from them, or anything the least bit indecisive. Either the fish grabbed the lure and tried to carry it off at top speed, or it did not take it at all. It was then our turn to strike, and try to sink the barb so it would not come out. Often the dorado would grip the upper part of the spoon, as I have already described, and would then become unstuck under water, but if the barb had penetrated one could be sure the fish would come leaping out of the water to try and shake the hook loose. Sometimes it would succeed at the first attempt, if not, it would keep on trying, jumping ten or fifteen times, and interspersing the leaps with all kinds of underwater jaggings and sounding. I would say that a dorado is considerably stronger and more active than an Atlantic salmon as long as it is in fast water, but when the angler gets it into slow water it will give up fairly soon.

Equipment

For this shore fishing we found *alpargatas* to be the best and most practical footwear. They are thin canvas slippers with rope soles. I wore them over short wading socks, made of the lightest waterproof material used in trout waders. Ordinary leather shoes

would have been torn to pieces on the rough rocks, and rubber waders would be too hot and clumsy. With the wading socks I could step into shallow water without getting wet, while the *alpargatas* gave an excellent hold on slippery surfaces. On one occasion, however, this arrangement failed to protect me. I had been trying to reach a projecting rock about 70 yds. out, and each time the spoon would fall short. Exasperated after several failures, I descended from the uneven surface of the bank on to a strip of sand covered with a few inches of water where I could get a level stance for casting. At that instant I felt a stinging pain in my ankle. I thought for a moment I had been bitten by a snake, but I could see none, in fact, no assailant anywhere. At the launch I discovered a small puncture in my ankle and a hole in the wading sock. I am now convinced that I had been stabbed by a fresh water stingray, called *raya* (*Potamotrygon sp.*), of which there are numbers in the river. It was no doubt lying perfectly camouflaged on the sandy bottom. My ankle swelled up enormously during the night, and throbbed so badly I could hardly sleep. But in any case sleep would have been difficult as a band of *carayá* (howler monkeys), stationed in some trees near our anchorage, made the night hideous with their appalling cries.

There was one serious disadvantage to shore fishing, which had to do with some minute flies, called *mbarigúí* (*Simulium sp.*). They attacked us incessantly during daylight hours. Their bite was only painful for a moment, but thereafter was followed by an infuriating itch that lasted for several days. We found that citronella mixed with a kind of pungent, heavy oil kept off the *mbarigúís* to a certain extent, though the cure was almost as unpleasant as the insects.

Besides the stingray we encountered only one other new fish, and a very strange one. I was casting with my largest 7-in. spoon into some fast water, and was amazed on retrieving it to see a tiny fish adhering to the hook. It was, in fact, shorter than the spoon, and only weighed $5\frac{1}{4}$ ozs. I noticed that the little creature's mouth was opened to such an extent that it looked as if its jaw must be dislocated. Then I saw the reason. In the lower jaw were two immensely long canine teeth, so long were they that the fish had of necessity to be provided with this extra wide gape to be able to take anything into its mouth. I released the fish, after weighing it on a small spring balance, without observing a further peculiarity. The lower canines of this fish are too long to be contained within the lips, and consequently have to be sheathed in funnels perforated through the upper palate and the snout. Thus when the mouth is closed the business ends of these teeth are still exposed to view like two sharp thorns projecting from the top of the head. This very curious fish is called *machete* or *chafalote* (*Rhaphiodon vulpinus*). It is a characin, but though it grows to 5 lbs. it is not worth eating on account of its numerous small bones and slender, meatless body. In addition to the *machete* there are a great many other fish in the river—apart from the catfish—that are worthy of an angler's attention, particularly the *dientudo* (*Hoplias malabaricus*), a large pike-like creature, of which I have written in the chapter on the *tucunaré*.

The places where we had our best successes with dorados on our way back from Puerto Mendez were at: Puerto Santa Elena, where we got two; at Foz do Iguassú, four; at Arroyo Monday, seven; at Toro Cuá, two; at Parehá, twelve; and at Caraguatay, seven. Thirty-two of these were caught either by Peter or myself, as Jock preferred trying for the smaller varieties of fish. We killed these dorados in six days of angling. On two days we did not fish, and on three other days our total catch amounted to only three fish. In view of our lack of sport on those three days we concluded that dorados

are apt to assemble in certain locations where they like the water, and that it is important to know where to look for them. We had, in fact, to revise our ideas as to the type of water they frequent. We found that deep placid water was of no value. The dorados generally seek a depth of five feet or less, where the flow is rapid but broken by rocks. They lie either just above the rocks or below in the outer edges of tails and riffles. Thus in a typical salmon pool one would find few dorados, because the stream would not be sufficiently agitated to please them.

All of the places mentioned above were good, both Puerto Santa Elena and Toro Cuá would have produced better results if we had given them more time. Arroyo Mondayá was a small tributary of the main river that Peter and I tried as an experiment. We ventured up it in a canoe, and soon realised that we were approaching a waterfall. Shortly we were struggling against rapids, and could only progress by violent paddling or by grasping branches to pull ourselves along. In that narrow stream, amid tumbling waters, there were many fine dorados. They would strike at every cast, and carry out 100 yds. of line in their first rush. We had to follow them down and somehow master them without tangling our lines or smashing our rods in the overhanging forest growths. After each fish we had to work our way upstream again, but the dorados were crowded there in inexhaustible numbers. Suddenly they all departed. We could not imagine why until we noticed two river wolves maintaining their position in the torrent with no apparent effort. Their heads seemed to be floating like balloons on the surface, as though having no connection with the swift current below. Without concern they watched us for several minutes, exhibiting not the slightest fear at our proximity. It certainly looked to us as though the dorados had sensed the presence of their deadly enemies and had left for other parts. At any rate we got no more strikes that afternoon, but we had discovered that these arroyos, of which there were a great many with their attendant waterfalls, are ideal if difficult locations for the capture of dorados.

Toro Cuá (the Cave of the Bull) was a well-known fishing ground, recommended by Major Hills, at which we stopped for only a few minutes. On the Argentine side there was a shelf of rock extending out from the shore about 50 yds. and over this the water poured in a heavy, accelerated glide. The dorados lay above the shelf, but there was no satisfactory position where the launch could tie up, so we continued on to Isla de Parehá, anchoring below the island. The river at that point hugged the left bank in a deep channel. On the other side of the island there were shallows, and at one place another small shelf forming a miniature waterfall with a drop of only a couple of feet. From the Paraguayan shore we could just reach the water above the fall with a long cast, and there we had the best luck of our entire trip. In two and a half hours, beginning at half past three, we landed ten dorados, and got two more in the same place the next morning, besides losing several others after prolonged battles. It was curious that none of these fish tried to escape by plunging over the waterfall, but sought instead to fight it out upstream. During this fishing we observed a behaviour pattern among the dorados that we had neither seen nor heard of before. We noticed that they were rising from time to time, evidently to take some form of food on the surface. Casting a few yards above these rises, we hooked and landed no less than four dorados, to our great delight. At Parehá we also tried using a "King Oreno" plug for the first time. Compared to the spoons, we could cast it a tremendous distance, but, possibly on account of its wooden bulk, it did not hook the fish properly.

The last place at which we had good fishing was at Caraguatay, where Benson was

as good as his word and took the day off to act as our guide. After some unsuccessful casting from an island, he suggested that we should try trolling, stating his opinion that this would be the only way to catch fish in view of the condition of the river. We had by this time formed many theories about where to fish. Among others we had concluded that dorados would not take in the shade. We were gratified when after an extended trial we emerged from a shady stretch along the shore and promptly, first Peter and then I, secured a dorado in the sunshine. We got both of these on "King Orenos." This water at Caraguataý was different from the other places we had fished. It was considerably deeper and somewhat roiled by the irregularities of the bottom, in addition it flowed too fast for canoe fishing. Hitherto when we fished from the canoe Pedroso would drop a heavy stone to anchor us at the head of a run, and would then let us gradually down the run on a long rope so that without paddling we could cover all the water. This worked very well when the water was shallow and had no real power behind it, but it would not have been feasible where we were now fishing. Benson, however, had devised a peculiar craft for this water. He had a small dinghy, fitted with a fixed engine, and this he lashed to the side of a large flat-bottomed punt. A peon acted as engineer and navigator of the dinghy, while another wielded an oar to steer the punt. I would say that neither of them understood the first elements of watermanship.

We had been covering a wide stretch of the river with the aid of the dinghy's motor, and had got several dorados when Peter's hook caught in the bottom. I was working the otter to free it, and happening to look downstream saw 20 ft. below an enormous whirlpool. It was at least 15 ft. across, and from its lip to its core there was a horrifying cone twisting down to a depth of 4 ft. or more. Benson saw the whirlpool at the same instant, and began giving orders to the peons in a calm, steady voice. But they were already in a panic. The engineer had locked his rudder, while the one with the oar was splashing about madly to no purpose at all. In a moment our whole clumsy contraption had spun around and was heading straight for the whirlpool. Benson told the engineer to reverse his engine, and finally after an eternity we managed to back out of danger. Every one of us was white in the face, except the peons—they were green. Subsequently Benson told me that this whirlpool was famous. It was called Mboi mbusu, that is, "the Devourer." A few years before two men were sucked down into it with their canoe. Their bodies were never recovered.

After the excitement we had experienced with Benson the remainder of our trip seemed tame, but by the end we felt more than confident that we knew where to look for dorados. We had become so knowing, in fact, that on our last day, making a long cast to a likely spot, I actually hit a dorado with my spoon, causing it to jump from the water in a great leap of surprised fright. This we considered a final seal on our competence, besides, we had our record: forty-three dorados, totalling 626½ lbs. Ten of them weighed 24 lbs. or over, but they came in all sizes, and a number of small ones had cut down our average. In any case, Peter, Jock, and I are ready to testify that dorados of *every* size take plenty of catching.



THE TUCUNARÉ AND OTHER FISH OF THE AMAZON

By LEANDER J. McCORMICK



THE tucunaré, pronounced too-coon-array, with tonic accent on the last syllable, belongs to the large family of Cichlidae, whose members are to tropical waters the same bright, colourful, vigorous, prickly sort of fish that the black basses and sunfish are to the temperate fresh waters of North America.

Not only do the families of the tucunaré and the black bass resemble each other, but they are also thought to have derived from a common ancestor—a salt water perch of cretaceous times. Already, however, in the early tertiary, the cichlids had given up a life on the ocean wave, to which they have never returned, though a few modern species have somewhat estuarine habitats.

The geographical distribution of the cichlids duplicates that of another tropical family of fish, the characins, and extends even farther: they are both found in South America and, strangely enough, in Africa, but the range of the cichlids also includes Palestine, Madagascar, Ceylon, and the southern litorals of India. Since certain of the South American genera are the most primitive of the family, one can logically suppose that these fish developed in that continent and migrated eastward. How they got to Africa is a conundrum to which I have referred in the chapter on tigerfish.

Though the cichlids, all told, number something like 600 species, only two out of about 250 varieties in South America are of particular interest to anglers: the tucunaré-assú (*Cichla ocellaris*) and its less resplendent counterpart, the tucunaré-branco, also called tucunaré-tinga (*C. temensis*). From a sporting point of view they are equally worth while, and guaranteed to give complete satisfaction both on the hook and on the table. Apart from their colour there is little to distinguish these two excellent game fish. One can best describe them as similar in shape to the American smallmouth bass, that is, a fish compressed somewhat laterally from a true cylindrical form, with a sturdy, sensible body. *Ocellaris* is, however, slightly stubbier and has a somewhat more “humped” outline at what might be called the shoulders than the black bass. *Temensis* is not so deep in form and approaches nearer to the shape of a wall-eyed pike. Of the two, *ocellaris* is more widely encountered, and it is also much the more handsome—in fact, ranking among the most beautiful fish in the world. It has a brilliant green-gold body, along which are neatly spaced four dark vertical bars. The fins are all a vivid orange-red, except the caudal which may be of a nondescript tone. The tail is rounded; at its base, where it joins the body, there is a circular black spot enclosed in a vermilion circle, giving the effect of a bloodshot eye—hence the trivial name “ocellaris.” The true eye of the tucunaré-assú has also a scarlet iris, balancing the tail spot after the manner of a pair of ear-rings.

To reach waters that contain tucunaré, one simply takes a plane to Georgetown, British Guiana, or to Pará at the mouth of the Amazon. There are also ways of arriving at these places by steamship under more or less comfortable conditions. Before the war one could embark for Pará from New York or Liverpool by the Booth Line, and thoroughly enjoy a fairly protracted sea journey. Considering the widespread enthusiasm displayed toward halieutics since the turn of the century, and the imposing outlay in time and money entailed, it is indeed amazing that so few of the angling fraternity have tried their luck in the Orinoco, or Essequibo. Still more astonishing, they have completely overlooked the Amazon, yet there is no body of fresh water that can so well repay them in variety of quarry. In this respect the mighty river, with some 2,000 species, is incomparably supreme. It probably contains twice as many varieties as the Congo, eight times as many as the Mississippi, and, in fact, if one excludes the fish of the abyssmal depths, about as many varieties as the entire Atlantic Ocean from pole to pole. Of course, many of these Amazonian species are negligibly small, but there still remain a great number that can set the angler more problems than he has ever faced, and afford him more thrills than he could look for on a switchback railway in a month of Sundays.

It is not surprising that the Amazon should be so fecund in species since the drainage basin is so vast, approaching closely as it does to the area of the United States. The Amazon drains 2,722,000 square miles, the United States in its entirety comprises 2,977,000. Amid this collection of unexploited fish the tucunaré will have most appeal to those anglers who believe there is nothing to equal a brown, a brook, or a rainbow trout. The tucunaré falls into their category because it takes a fly, and because it frequents clear fresh water. According to Vincent Roth the tucunaré, which in British Guiana is known as the lukanani, will usually weigh between 3 and 5 lbs., although specimens have been known to scale up to 7 or 8 lbs. Roth is, of course, writing of lukananis such as may normally be expected in a day's angling. He says that the fish frequents practically all the rivers, lakes, or canals, and is the best-known and one of the tastiest fish in the Colony. In the Amazon the tucunaré has been reported up to a length of 31½ ins., and a weight of about 18 lbs., but fish of this size must be rare. The lukanani seems to vary greatly in appearance in British Guiana: the colour of the body, the markings, and the ocelli differing in practically every case. As far as I can determine *temensis* does not occur in the Essequibo system.

My own experiences with the tucunaré took place on the Amazon; but I will now digress from this fish and return to it in the sequence of my narrative. I had gone to the Amazon to fill in one of those intervals that sometimes crop up when by chance there is nothing else that requires attention. I thought it a good opportunity to try fishing in a river practically unknown to anglers. Sailing from England in the s.s. *Anselm*, after some calls in Portugal and a stop at Madeira, I reached Pará on the 29th of January, at the end of a fifteen-day voyage. Before making up my mind to go I had attempted to discover what kind of sporting fish the river contained, but in this I was eminently unsuccessful. I could find no serious accounts of angling, and only a paragraph here and there on the subject in semi-fictional tales of adventure, in which the authors were always terribly worried about how to avoid being transfixed by arrows dipped in curare poison. I trusted that I would have little need for such information. From my good friend the late J. R. Norman I was able, however, to pick up the names of a few fish to look out for. It was also in his office at the Museum that I realised the importance of buying a copy of Magalhães' *Monographia Brasileira de Peixes Fluviais*. In spite of

its being in Portuguese, of its containing innumerable mistakes, and of its being more jumbled in the editing than a jig-saw puzzle, this book is almost as necessary for an angler on the Amazon as his rod. It lists and illustrates a good proportion of the strange fish of the river, and offers a smattering of facts and legends regarding the habits, feeding, idiosyncrasies, eating qualities, etc., of the more prominent varieties. Most valuable of all, it gives the Tupi Indian names of what one is after.

Pará, the port serving the small adjoining city of Belém, is the place from which one must set forth to fish, if circumstances preclude a more ambitious expedition up river. At Pará there are boats available to transport the angler to the island of Marajó, some 15 miles distant across what is called the Rio Pará, though it is really only the south branch of the Amazon. Marajó is an immense island comprising about 14,000 square miles of flat, and in parts swampy, grazing land. Among other natural features it includes Lake Arary in which tucunaré can be secured. I have heard that there is scarcely any hotel accommodation on Marajó, but there are several ranches where one can stay, if one is lucky enough to get an invitation. One can also charter a fishing boat and try along the shores of the island for many kinds of fish. There is, however, one serious drawback to such a programme: the storms and steep seas in the agitated estuary of the Amazon are famous for their violence, and provide enough anxiety to take much of the pleasure out of the sport. In any case the waters are brackish and tidal, so that one is really missing a majority of the fresh water fish one should properly be seeking in the great river. Nevertheless, in the vicinity of Marajó a considerable fleet of market fishermen ply their trade. Their boats, called vigilenas, are picturesque, with slanting masts that give a soft of lateen effect to the rigging, and with sails of an exquisite purple blue such as I have seen nowhere else. In the market place at dawn one can inspect the outcome of their labours: curious fish for the most part, to which one would hesitate to put a name. But there are also mullets, sea basses, wahoos, cero mackerels and even tarpon—a fish elsewhere regarded as unfit for consumption. The main bulk of the catch consists, however, of two species of catfish: the huge pirahyba (*Brachyplatystoma filamentosum*) and the related, and more recherché dourada (*B. rousseauxi*). An angler who has the hardihood and time at his disposal would, I am sure, have an experience worth remembering if he went out in a vigilena after pirahyba. I understand that they are caught on heavy handlines at night, but it would, of course, be possible to employ a suitable rod and reel. Since the pirahyba probably runs to 400 lbs. or more, one could expect plenty of exertion before landing the brute. In this connection, see an account of fishing for manguruyú, a similar kind of large catfish, in the chapter on dorado. The pirahyba furnishes enormous steaks of meat, as white and delicate looking as a marsh-mallow. Dourada are considerably smaller, attaining about 60 lbs. Their flesh is more esteemed by the natives. There is also another related catfish, the piramutába (*B. vaillanti*) that does not go much above 30 lbs. This fish is less frequently obtainable, and from a culinary point of view is the most highly regarded among the catfish of the Amazon. A peculiarity of the piramutába is its tremendously long feelers. In front two of them are nearly as long as its body, while attached to the ends of its tail are two other filamentous prolongations that extend about the same distance to the rear. Thus a 3-ft. piramutába has a sensory range of about 3 yds. fore and aft without having to move an inch. The tail "whips" do not have the same powers as the barbels, but probably function like a cat's whiskers to warn of dangers downstream.

In addition to the fish already mentioned there are many others of interest in the

streams and creeks or along the shores of Marajó. With a light trout rod and small dry flies, for instance, one can have the unique experience of casting to the tralhôto (*Anableps anableps*), a fish that can see the angler as acutely as he can see it. The tralhôto belongs to the family of top-minnows (Cyprinodontidae). It is highly specialised, being perhaps the most remarkable of all vertebrates inasmuch as it boasts two features unduplicated in any other animal. One of these pertains to its eyes, which bulge like a frog's. The pupils of these eyes are divided into two parts, forming a kind of figure eight. At the waist of the eight there is a horizontal line. The tralhôto swims submerged at such a depth that the surface film of the water exactly coincides with this line. Above the line the fish can see what goes on in the air aloft, below the line it can see what is happening in the water beneath. Because bony fish possess no eyelids or tear ducts, tralhôtos have to keep moistening their eyes. In order to accomplish this they are continually ducking their heads under the surface in a comical manner. They are also very pugnacious, and spend a good part of their time pursuing each other on the surface for no evident reason. Thus tralhôtos seem to live a fearfully agitated existence. The other unexampled feature of this fish has to do with an inexplicable physical limitation that may prevent copulation between a particular male and a particular female tralhôto; but this inhibition is obviously of more concern to the tralhôtos than to anglers.

These clownish behaving fish seldom exceed 10 ins. in length and a few ounces in weight. There is really no object in catching them except to demonstrate one's finesse in frustrating their defences. Normally they swim in little flotillas of a half dozen or more in the rapid parts of streams, or in shallow, brackish water, preferably where small wavelets are breaking over mudflats at the flow of the tide. In their eagerness to capture beach fleas or similar prey along the ultimate edges of the far-flung ripples, they are constantly left stranded on the mud, from which they usually manage to wriggle back with the next succeeding wave. Their two-way eyesight preserves them, of course, from raptorial birds above, and from carnivorous fish below. In either case, they are exceedingly alert, diving into deep water to avoid the birds, and escaping from enemy fish by skittering along the surface in a series of bounding leaps with most or all of their bodies out of water. I have never tried fishing for tralhôtos, but am informed that they will take very small dry flies on No. 17 (English No. 000) hooks quite readily. Naturally, the trick about this angling is to keep out of sight of the tralhôto's efficient twin periscopes.

Another strange creature more interesting to scientists and ichthyologists than to simple anglers is the poraquê, or electric eel (*Electrophorus electricus*) which also occurs within reach of Pará. This fish is not an eel at all, but belongs to the sub-order Gymno-toidea, its origin being obscure, though it may be a highly modified characin. It can be captured in clear, shallow water, where it lies beneath the protection of overhanging banks or the branches of projecting trees. The most convenient method is to swipe it up in a wicker basket, if it is small enough. I must warn those unfamiliar with the poraquê not to attempt this little game in too lighthearted a manner. A large one can let loose a thunderbolt of electricity strong enough to stun a horse, and they do come very large: one of them measured 8 ft. 10½ ins. and weighed 62 lbs. The poraquê is not an edible fish, and has no natural enemies, except, of course, the collectors for museums. Roth reports, however, the attack of a jaguar on a poraquê with indecisive results.

There are other fish to be pursued in the waters surrounding Marajó, among them two that are not unknown to anglers in Florida: the camurým (*Centropomus undecimalis*), which is a species of robalo, or snook, and the pescada, a variety of sea-drum (*Plagioscion*

squamosissimum). Both of these fish, though primarily belonging to the sea, have accommodated themselves to life in the river, and are encountered hundreds of miles beyond the influence of the ocean. In addition to scores of singular but unremarkable fish from an angling standpoint, there remain the dread piranhas (*Serrasalmus*), most dangerous of all fresh water fish. These can be found for the most part in slow flowing or stagnant water. Some of the lakes, creeks, and streams of Marajó shelter them in large schools, but I will for the moment defer my description of angling for this celebrated fish.

It did not take me long to decide about going farther afield, and I continued my voyage aboard the *Anselm* to Manáos, almost 1,000 miles inland. Our ship plowed a steady course up this river, so vast that it was originally called "The River Sea," between banks hidden and overwhelmed by an impenetrable equatorial jungle. Occasionally, here and there, at longish intervals we came to man-made clearings, or to villages separated from each other by still greater distances; for the Amazon, even in its lower reaches, offers few indications that it was discovered so long ago as in the year 1500. The river itself was of a light brown colour, and it flowed at a slow, majestic speed. Opposite Obidos it contracts to about a mile in width for a short stretch, and there alone shows a slightly accelerated pace. At Manáos, which is situated on the Rio Negro (only the third largest of its tributaries), the Amazon is still 4 miles wide, and more than 300 ft. deep.

My first concern at Manáos was, of course, to charter a launch, and this did not prove easy. The few lessons in Portuguese I had taken at a Berlitz school were clearly inadequate to enable me to carry through such a delicate transaction. Besides, I had not reckoned on the extraordinary reluctance of Brazilians to do business, even with a willing buyer. Those that I encountered were only prepared to discuss such a matter with friends of long standing. It is friendship that counts with Brazilians, not a bank roll. Thus I was forced to rely on the good nature of shipboard acquaintances to negotiate for me, and they were all much occupied with their own affairs. A further obstacle almost disrupted my entire undertaking. February was the season for gathering Brazil nuts, and the launches were engaged in transporting the crop—so said their owners—though in fact I could see several launches anchored idly in the port. Eventually I succeeded in hiring the *Pirata* from Augusto Lima. It was a small craft, but it would do until I could get a larger one with a cabin that was promised me in an indefinite manner by Senhor Mathias.

With the *Pirata* I set forth the moment I could across the Rio Negro. This water, as might be suspected, was quite different from the main river. It flowed even slower, at about 3 miles per hour. Superficially it looked black, but in fact it was fairly clear with a brownish tone, such as one would get by adding a few spoonfuls of black coffee to a glass of water. Paulo, the son of Senhor Lima, ran the boat and acted as guide, though he knew nothing about fishing. To begin with he steered for some sandbars enclosing extensive lagoons. These sandbars, covered with vegetation, together with thousands of miles of low-lying jungles and savannas, are called *igapo*, that is, areas destined to be submerged in high water. During the period of floods the vegetation is uprooted and carried off downstream, forming the famous floating islands, often described as a phenomenon of the river.

It was already late in the afternoon and the sky was dull with dark clouds on the horizon. I had not the slightest notion where to fish or how to go about it. First I tried casting my favourite "hair-basser" fly, then 3-in. spoons, with no result. There

were two Indians in the lagoon using a seine. We joined them for a chat and to discover what they were after. They did not have much, complaining that it was a bad day, and that the river was far too high. They offered me an aracú (*Leporinus fasciatus*) for bait. When I tried to pay them a milreis for it they were quite hurt and refused the coin, though they were obviously intending to sell the fish in the market. I found out that this is a charming convention among the pescadores (fishermen) of the Amazon. They were always ready to start a newcomer off with a free gift of bait. The aracú is a close relative of the bôga, described in the chapter on dorado, but it is much more swagger in appearance, with a series of wide black bands encircling its body, set off in sharp contrast against a pale cream background. In the Amazon there are a number of relatives of the aracú, all of them characins. They constitute a regular dish of the poor during the months from August to November, when they are more easily obtained than any other fish. None of them exceeds 1 ft. in length or 1 lb. in weight as far as I can ascertain. Though I did not catch any of these, they can no doubt be captured in the same way as the bôga.

The Indians told us we could get piranhas in the lagoon, and with that in mind I cut up the aracú for bait, but had no success. At last I tried trolling a Heddon "Chub Wiggler" along the shore. This jointed lure has an extraordinarily vivacious action in the water even at slow speed, and in a short interval I hooked a pirá-andirá, or fish-vampire (*Hydrolicus scomberoides*). I could see that this was a small fish of not more than 2 lbs., but for its size it put up a splendid fight, jumping repeatedly. After a few minutes I got it to the boat and realised that I needed my net. It was lying with the rest of my tackle forward of the engine housing, and I did not know the word for it (rede) in Portuguese. I had already discovered that Paulo was an intelligent young man, but he simply could not understand my frantic gestures, and in the confusion the fish came off. The pirá-andirá, also called peixe-cachorro, is a larger and more spectacular relative of the machete that I had caught on the Alto Paraná. It has two lower canines which project through the top of the snout as though they were a pair of daggers; these teeth are immense and recurved like the fangs of a snake so that anything seized can only go one way—down the throat. I think on this occasion, however, the fish was saved by these exaggerated teeth, as it was able to get a purchase on the plug and thus shake loose. In the mercado (market) I saw later a large specimen, weighing over 6 lbs. and about 30 ins. long. The teeth in this fish measured nearly $1\frac{1}{4}$ ins. The pirá-andirá is a nuisance to the pescadores, as what flesh it possesses is lean and with little flavour. They dislike catching it for a quaint reason: its huge prehensile teeth get enmeshed in the nets from which it is hard to disengage the creature at a moment when more profitable fish require attention. From an angling point of view the pirá-andirá is undoubtedly first class. It may be the fastest swimming fish in the Amazon, and it certainly behaves gamely on the hook.

It is just as well now to make a confession that reflects on my judgment. February was no time to be fishing in the Amazon. Before starting I knew it was the wrong season, but I decided to try it anyway. I had not realised the extraordinary difference in water level between the dry and the wet seasons, nor the immensely greater area to be covered by an angler when the river was in flood. In parts, for instance, where in low water a tributary might be confined within a bed not more than a $\frac{1}{4}$ mile wide, in high water it might extend over igapos perhaps to a width of 400 miles. The fish population would thus be infinitely more dispersed and harder to locate. The situation was not quite that bad for me. In February the river had reached some 20 ft. above low water,

and was destined to rise another 25 ft. before receding in July. The best season for angling is consequently during the months of October-November when the fish are most crowded together within the narrowest limits. The great tributaries of the Amazon stretch to such vast distances, have their origins so far apart, and spring from such different sources that the period of low water varies, but the months indicated are those most favourable for angling in the neighbourhood of Manáos.

The next morning I started out early in the *Pirata* with my friend Kostia Vlasto. We made for the junction of the Rio Solimões, the main branch of the Amazon with the Rio Negro. In about three quarters of an hour we were preparing to turn right-handed up the Solimões when our plans were completely scuttled by an unforeseen encounter. At that point the yellow waters of the Solimões came bustling at an oblique angle into the black Negro, forming a swirling current rip in which revolved the flotsam of both rivers. As we crossed this sharp dividing line I heard a loud snort, and there 20 yds. away, coasting slowly on the surface, lay an immense porpoise. In a moment it arched its back and dived below. Unquestionably the most astonishing feature about this animal was its colour. It was a bright salmon pink all over! I had previously heard about the pink porpoise (*Inia geoffroyensis*) of the Amazon, but had never imagined I would come across the creature, especially at such close range. In another moment two or three more appeared. They were completely unimpressed by our presence. I immediately changed my ideas about angling for that day. This was an opportunity not to be missed. In a short while my swordfish rod was rigged, and I was trolling large spoons and plugs for the porpoises without a sign of interest on their part. I knew, of course, that these aquatic mammals do not take a lure in the open sea. The few reported incidents of hooking them are either of suspect veracity, or refer to porpoises that were foul-hooked. Occasionally one hears of porpoises grabbing a mackerel that is being hauled in by a fisherman out of a large school of fish which the porpoises have been chasing, but I have been unable to verify the *bona fide* hooking and capture of a porpoise on any lure offered singly in the way that lures are used for swordfish, marlins, tunas or other large marine fish. For one thing, porpoises, with which, of course, I include dolphins, generally travel at such a pace that it is hard to get a lure in front of them, for another, they must be too smart to be fooled by an angler's wiles; at any rate they won't take. In the Solimões, however, there seemed to be some chance for me. The water was so murky that it would surely hide the hook and line; besides, these porpoises, called bôto vermelho, were not swimming fast. They were lounging about, going down for a few minutes, and then rising to blow in leisurely fashion at about the same spot. On the surface they would float calmly, sometimes so close I could have hit them with an oar.

We went upstream half a mile to where some pescadores were busy with their nets, and they gave us a supply of small fish. This seemed a more likely inducement for the porpoises, and I began trying various ways of presenting the bait. I trolled it, I still-fished, and finally arranged a complicated trotline with six or eight live baits attached to varying lengths of subsidiary line, the whole floated by chunks of cork. With this contrivance I was able to cover 50 yds. of water at a time, and display numerous active lures at different depths for the delectation of the bôtos. It was no use. Occasionally one of them would come near enough, we thought, to see the shiny bait, but there was never a strike.

These pink porpoises are considered primitive as cetaceans go. Their nearest and only close relatives live far away in the Ganges and in Lake Tungting, through which

flows the Yangtze Kiang, but the Asiatic varieties are black or dark grey in colour. When it comes to it, except for white people who have been so heedless as to expose themselves too long on bathing beaches, there is no other mammal in nature that is pink all over like a new-born baby. The bôto vermelho has a very long snout and a mouth filled with sharp pointed teeth. It reaches a length of about 8 ft. and a weight of 300 or 400 lbs. When young it is brownish grey. A few grown specimens are dark brown and others parti-coloured, the pink appearing in large patches beginning at the tail end. It would seem that brown represents an intermediate stage, and that pink is the colour of maturity.

After much exhausting and soul-searing effort we finally gave up this angling and pulled in the trotline. The bait fish had consisted mostly of branquinhas (*Epicrystus macrolepis*). They are silvery little characins with laterally compressed bodies somewhat more elongated, but otherwise the shape of American sunfish. In baiting I had passed the hook through the muscles in front of the dorsal fin so that they were held on an even keel and could swim about freely. After about an hour and a half in the water some of them were as lively as ever, but others looked sickly. I was amazed on examining one of these to discover that it had been attacked by small fish which had enlarged the hole and bitten away the flesh in the vicinity of the hook. I can only conclude that baby piranhas, or perhaps candirús (*Vandellia*), had been involved in this sanguinary business of nibbling at the wound of a living fish. Nowhere have I heard or read of a similar instance of savagery among small fish, and this circumstance is, I believe, reported here for the first time in any writing. We put the branquinhas out of their misery and chugged along to a small pass connecting with a lake. The pescadores were still drawing their nets with practised skill, standing erect in their crazy canoes as if able to dispense with the laws of equilibrium. But they were being hampered in their work by another kind of porpoise, the bôto preto (*Sotalia tucuxi*). There are in fact either three or four varieties of porpoises in the Amazon, nobody knows exactly how many because the fauna of the river has never yet been definitely classified. These black porpoises with wine-tinged bellies displayed the usual behaviour of marine porpoises everywhere. They swam at speed, arching in and out of the water in a serpentine and regular manner, following each other singly or in small pods. There was one trick they had, however, which was notably anomalous. When the pescadores had drawn in their nets and were trying to collect their catch the bôtos dashed in, jumping round on all sides so as to snap up any fish that might slither out through or over the nets. The bôtos provided an amazing illustration of intelligence in that turgid water, knowing apparently where the nets lay, and never getting themselves entangled. The Indians, for their part, accepted the bôtos' activities with bored resignation, having no doubt concluded from experience that there was nothing they could do to circumvent the purposeful porpoises.

These black bôtos are neither so large nor so intriguing as the bôto vermelho, but I could not resist the temptation to pursue them. There was no question what they were after. They loved branquinhas, and I still had plenty to offer them. The difficulty, however, was the rate at which they travelled. The *Pirata* could not keep up with them, and after repeated attempts we were able only once to troll our lures across their path. Thus at the end of the day we had to return completely worn out, with no consolation of any sort to reward our exhaustion. Kostia, not being so confirmed an angler, was almost in a spirit of mutiny. At first he had been greatly excited, but as the hours passed and none of my tactics succeeded he became thoroughly despondent. It was all very



well to assure him that we were engaged in a unique enterprise; he wanted results and there were none forthcoming. I tried many times on other occasions to capture porpoises. They were always popping up to entice me, like the sirens of Odysseus, from legitimate angling. I spent hours on them when I should have been occupied with catchable fish, but always the hope kept recurring that I might achieve an unexampled triumph. I knew that the S.P.C.A. would have been in an uproar over such wanton cruelty. I have heard that a harpooned porpoise will cry like a child—it's a mammal, after all. Besides, Francis Arlidge, my boatman in New Zealand, had told me that it was no use hooking porpoises because they are too strong, swim too fast, and cannot be drowned like a fish. None of these considerations deterred me. In any case, I had been commissioned to secure a pink porpoise for the British Museum. One of them was going to die, and I wanted to do the killing in my own way.

I went out a couple of more times with Kostia before he left Manáos, but each was a penance for him. I suppose non-anglers cannot grasp what it means to be born with a hook in your mouth, but there was nothing else for him to do in that little jungle city while waiting for his ship to leave, except accompany me. He could not understand with his logically trained mind how I could devote so many hours trying to catch the uncatchable bôtos, and he could not endure the broiling sun and steamy heat to which he was subjected while I angled very humbly for small fish. We had one curious experience. In a pass leading to a lagoon we fished a good part of an afternoon with floats and light rods. We were baiting with meat in fairly deep clear water at a spot where the current was imperceptible. Now any fool can watch a float and tell whether he is getting a nibble or not, yet we lost bait after bait without being aware that anything was taking. It was really mysterious, but, as I shall set forth later, I believe this peculiar state of affairs was caused by small piranhas whose teeth were so sharp that they could bite off the meat without jiggling the floats.

At last Senhor Mathias was persuaded to name a day when I could have his larger lancha, the *Theresa*, and it was safe for me to make a start. I had arranged with a young German—this was before the war, of course—to stay at his fazenda, Nuovo Hamburgo, on Lago Calado, about 60 miles up the Solimões. I was to journey to the fazenda in the *Pirata* and would be joined there after four days by the *Theresa*. At the fazenda I was welcomed by Kraus, the manager, and his Turkish wife, Sebastiana. The accommodation was fair, that is to say, I slept in a hammock, there was no toilet or bath, the lighting was with oil lamps, but there was a water pump. In and about the house they kept an enormous assortment of cats, dogs, turkeys, chickens, monkeys, and parakeets. The mango trees outside were a rendezvous for flocks of green parrots, which woke me about six o'clock each morning with their screeching, and having accomplished this task would fly off happily into the jungle for the rest of the day. My only real objection to Nuovo Hamburgo had to do with the amazing number and variety of snakes that infested the place. I will omit the rest of the fauna except to mention that there were gathered around us here: jaguars, noisy butterflies, "two-headed" snakes, "flying" snakes, "stop-and-go" fireflies, sloths, toucans, army-ants, and in the living-room an enormous tame spider that kept the house moderately free from insect pests.

My first morning, with a towel over my shoulder, I descended the cliff on which the house was perched to take a swim. A few yards out from the landing stage I noticed a floating log, then my eyes bulged. The log was a cayman about 14 ft. long. I must say at once that though the Amazon contains an immense number of huge jacarés

(caymans), they are to all intents harmless. I abandoned my swim, but it was only from prejudice. In the Amazon these beasts are fearless of man and are usually not to be feared. After breakfast I started out with Lauro, a caboclo (domesticated Indian), in a fragile canoe. It was about the shape of a kayak—very slender, very pointed, and very lacking in stability. Lauro turned out to be the only Indian I employed who knew how to paddle this canoe as I liked. The others always wanted to paddle from the bow, and would get mixed up if required to handle the craft in what is elsewhere considered the correct way, from the stern. I understood not a word of his language, nor he of mine, yet we carried on long conversations. He took me up a creek that zigzagged through an igapo destined soon to be flooded, and I began casting my "Chub Wiggler" with a light bait rod. Shortly I got several strikes, and finally hooked a fish. It gave a nice run but did not jump, and fought it out with me downstairs, taking advantage of submerged vegetation to entangle me as best it could. Lauro manoeuvred the canoe skilfully, and, though the fish did not intend to give up, after a while I was placed directly above it and could exert a continuous upward pull with my rod bent strongly. The fish had to yield to this treatment and was duly gaffed. It turned out to be a pirapitinga (*Brycon nattereri*) of $7\frac{1}{2}$ lbs. It is an herbivorous characin, compressed laterally and oval in outline. The pirapitinga grows to a length of more than 21 ins. and a depth of about 11. A fish with such dimensions would scale something like 15 lbs. Its body is grey, shading to silver along the belly. The scales are shiny and fairly large, giving a very svelte and delectable appearance, and leaving no doubt that it is excellent to eat, as indeed it is. This fish has solid chewing teeth and powerful jaws. My hooks were flattened down and needed considerable adjustment with a pair of pliers before they could be used again. The pirapitinga, like several similar fish in the Amazon, is fond of various small fruits that grow on trees or shrubs along the banks of the river. It stations regularly in the vicinity of these trees (known as catauari, jauari, taquari, tapereba, and taquarirana) during the season when the ripe fruit begins to fall. The Indians take advantage of this habit. They attach pebbles, or a round bone carved from the rib of a manatee, to a line and let it drop repeatedly into the water so as to simulate the effect of a shower of fruit. The instrument is called a gaponga. When in response the pirapitinga surges to the surface they have another rod handy baited with the appropriate fruit so as to hook the fish. Alternatively, and as is generally the case with most of the large fish of the river, they shoot it with an arrow. If one can believe the Indians, they claim that the jaguar also uses a gaponga. It attracts a pirapitinga to the surface by beating the water with the tip of its tail, then turning in a flash seizes the fish in its claws. This story is set down by Magalhães, on whom I have drawn for considerable out-of-the-way information of this sort about the fish of the Amazon.

Lauro and I continued up the stream. It began to meander through low banks, forming little bays and islands in the twisting course of the current. The banks were bordered with low thorny trees, called aturia, and among them were many hoatzins, those curious leaf-eating birds that drive ornithologists into a frenzy on account of their many primitive characteristics and strange behaviour. I had now rigged a trout rod, and in suitable spots was putting out a "hair-basser." To a short cast beneath a bush there came a dashing response, and in a minute I was playing a charming silvery fish of slightly more than 1 lb. It jumped several times around the canoe and finally leapt accommodatingly into my extended net. Later I found that it was a matrinchão (*Brycon opalinus*). Unlike its close relative the pirapitinga, it has a fusiform body, only slightly

flattened along the sides. It attains a length of about 20 ins. and a weight of 4 or 5 lbs. The matrinchão is omnivorous, feeding on insects, fruit, or small fish. I am, however, prepared to guarantee that it never sampled a "hair-basser" before. After this exceedingly pleasant little episode I got several more matrinchãos, each rewarding me with a fine struggle. They seemed to prefer the shady parts of the stream, but the matrinchão frequents almost any water. It is widely distributed not only in stagnant igapos, but also in turbulent rapids to considerable elevations. The flesh is white and excellent; there is really no criticism to be levelled against the fish from any point of view. The matrinchão is among the least specialised and therefore represents, perhaps, the average type in the sub-order of characins. It is also the South American characin that resembles and approaches nearest to *Alestes*, a correspondingly unspecialised characin of Africa. Though these fish do not belong to the same genus, they are very closely related.

We had begun to retrace our way to the fazenda, and entered another branch of the stream that was broader and less overhung by foliage. What current there was here flowed through the middle of a sinuous lagoon, but I directed Lauro to follow the shoreline. It was indented with numerous small recesses or baylets such as one might expect to see in a Wisconsin lake. Of course the vegetation was different, but the conditions corresponded exactly to ideal black bass water. There were lily pads and sunken branches or tree trunks with every twig visible through the crystal clear water to a depth of 10 ft. At the first baylet I stopped the canoe and began casting the "hair-basser," gradually lengthening the line so as thoroughly to probe this promising haven. Suddenly, while I was retrieving the fly in small jerks, my eye caught the gleam of a golden thunderbolt that in another instant hit my lure with savage intent. The next moment, in response to my strike, an exquisite fish leapt high out of the water. It was a tucunaré—the fish for which I had come so far, but it did not show any appreciation for the implied compliment. The point of my gut was only 5X, and the tucunaré seemed to know it. After three sample jumps it dashed violently towards a large submerged branch at the other side of the inlet. Dropping my rod top I applied all the side strain I dared, and somehow steered the fish away from this sanctuary. Four times it gave a series of jumps, but finally it had to yield and was safely netted. On the scales it went to slightly over 2½ lbs. I got two more tucunarés, not quite as large, before lunch. The tucunaré I can safely state to be as fine a small game fish as one could desire. One might imagine that in those warm equatorial waters the fish would be lethargic, but this is a long way from the case. Every variety with which I had to deal possessed all the energy one could well demand, and put up as good a battle as one could anticipate considering its build. The tucunaré compares favourably for strength with a smallmouth bass, and for speed with a trout. It is to be found over a wide range in either rapid or stagnant water, provided it is clear and unreddened. Though it prefers a small spoon or a wet fly sunk slightly below the surface, it will also take a dry fly, twitched a little to give it life. The Indians fish for it with the scarlet plume of a macaw, harling the feather with a hook attached behind their canoes.

When it comes to subtlety the tucunaré cannot, of course, offer the finesse or sheer elegance that one gets out of fishing with the dry fly for a mature brown trout in a Hampshire chalk stream. The tucunaré, like the black bass, is robust and ingenuous. Both of them attack a lure as if they had never heard of Hardy Bros., in Pall Mall, or had any notion what Heddon manufactures at Dowagiac, Michigan. This lack of education is regrettable, considering that these fish have so many other virtues. The tucunaré,

however, also brings much that is unfamiliar and curious, not to say exciting, to an angler from northern climes. Space does not permit to detail the exotic splendours of the Amazon, but they are enough to fascinate the eye and entrance the senses. If, too, the tucunaré lacks the craftiness of a wary old trout, in one respect I believe it defeats both the trout and the black bass, that is, gastronomically. As far as I am concerned I do not know any fish that surpasses it in all the four qualities an epicure might seek, if I may be permitted the audacity to list them, namely: (a) flavour, (b) consistency of the flesh, (c) liquid content of the flesh, (d) convenience in eating. In all of these the tucunaré, in my opinion, comes off with flying colours. There is nothing easier or more pleasant to argue about than food, because everyone has his own ideas and prejudices, but to elaborate my statement I will exemplify the four qualities: (a) Obviously flavour is indefinable, goes back perhaps to childhood memories, and depends on what one is looking for. Many fish have a delectable flavour such as: Dover sole, common perch, trout, mackerel, black bass, pompano, rouget (*Mullus surmuletus*) of the Mediterranean, fogosh (*Lucioperca sandra*) of Lake Balaton, candlefish (*Thaleichthys pacificus*) of the Columbia River, *Mormyrops deliciosus* Leach of the Congo, ngege (*Tilapia esculenta*) of Lake Victoria, navaga (*Eleginus*) of the Arctic Ocean, and pejerrey (*Odontesthes bonariensis*) of the Argentine. Among all of these I think the tucunaré has the most serious competition for flavour with a slightly putrid rouget—the only fish I know that is better when gamy and not quite fresh. (b) To my mind the consistency of the flesh of a fish should be such that one can really bite and chew it. In this respect a Dover sole is ideal. It is not flaky, or mushy, or coarse, or soft, nor is it stringy, or fibrous. For various reasons in this connection I criticise whitefish, swordfish, tuna, catfish, striped bass and many others, while tucunaré is just right. (c) Under the category of liquid content I would distinguish between flesh that is dry or watery, and also to what extent it is oily. Candlefish and mackerel are too oily, skates (*Raja batis*) too moist, salmon and pompano too dry, the tucunaré is perfect. (d) This refers, of course, to the boniness of the fish, and the ease of finding desirable portions to eat. Many fish contain quantities of small bones, buried in the flesh and hard to remove. The pleasure of enjoying an uninterrupted meal without having to feel around for bones in one's mouth is an important consideration. To be thoroughly satisfactory a fish should have well-defined, large fillets that one can get at easily. Here again the tucunaré is first class. I have never tasted the "delicious" *Mormyrops* of the Congo, so can say nothing about it, except that we must rely on Leach's sense of taste when he named the fish. The "esculent" ngege of Lake Victoria is a close relative of the tucunaré and may have the same kind of qualities. I must add that the moucht (*Tilapia nilotica*) of the Sea of Galilee is another close relative, but it is appalling on account of its terribly fishy flavour, and was certainly not worth all the trouble taken over it by the Disciples in the time of our Lord.

If I had been content with angling for fish, *qua* fish, I need have gone no farther than Nuovo Hamburgo. I had found the kind of water necessary for the state of the river at that season. The igapo was not yet flooded too widely, and there was plenty of sport available. Probably, using different lures I would have accounted for a great number of different species, among others surely the trahira (*Hoplias malabaricus*), of which I never saw a sign, neither during my trip nor at the fish markets of Pará or Manáos. I must mention the trahira, however, because it is about the most widely distributed fish throughout South America, and particularly because Vincent Roth states in his book that the haimara (as it is called in British Guiana) is to his mind even better flavoured

than the tucunaré. Obviously I cannot question his judgment, but I am wondering if it measures up so well under the four tests applied above. This fish is unusual among the characins as it does not possess an adipose fin. It is a vicious, skulking brute, lying motionless in still, shallow water ready to pounce murderously on any small fish, after the manner of the pikes. There are several closely related genera, and they have been of interest to ichthyologists because of certain characteristics that speciously recall the primitive bowfin (*Amia*) of North America. The trahira is sub-cylindrical in form, with a rather blunt head. Its mouth is filled with quantities of needle sharp teeth. In the breeding season both parents defend the eggs with desperate courage. They will even attack a man if he ventures too near their nest. Roth reports the case of two trahiras killing a dog that fell into the water. He also has a note of seeing one that was 34 ins. long and weighed 25 lbs. Trahiras are reputed to be able to travel a considerable distance on land. They are thought to accomplish this by holding some water in their mouths so as to keep their gills wet.

I was disappointed the next morning when Kraus announced that he required the services of Lauro, and offered me instead the dingiest, most untidy Indian one could imagine. His name was Estevão, and he seemed completely debilitated. In the front of his trousers was a large indecent rent which he never had the energy to sew up. But Estevão turned out to be an expert with the tarafa (throw-net) and thus solved my bait problem for me. With him in the *Pirata* we went to the far end of Lago Calado, and leaving the launch anchored took the canoe up a clear, deep creek about 40 ft. wide. On both sides the jungle towered above us to a great height and finally met above our heads in a canopy so dense as to shut out the sky. The Amazonian jungle is amazing, not only on account of the wild tangle of vines and lianas that cling to and festoon the immense trees, but particularly because each tree is different. It is as if a botanist had planted a vast arboretum with every possible variety of forest growth, but had decided to have only one of each kind of tree. Along the nave of this leafy cathedral Estevão paddled me, through swift-flowing, glassy water, amid a deathly silence while I trolled my faithful "Chub-Wiggler." I kept urging Estevão to go faster and faster. When he had reached his best speed we were rewarded by a powerful strike. The fish gave me a stern underwater battle, but finally had to come in. I discovered it was a tambaquý (*Colossoma bidens*) weighing 5½ lbs. This fish resembles in shape the pirapitinga, but it grows considerably larger, and probably reaches about 20 lbs. Its scales are smaller, less shiny, and of a somewhat dull grey tone. The flesh is savourous and oily. Besides their meat, female tambaquýs at that season of the year yield several pounds of bright green roe. In the excitement of catching the tambaquý I had not noticed that it was getting dark. We went on a piece, and when Estevão had again reached his top speed there was another strong strike. This one was much heavier and so powerful that before Estevão could turn the canoe I found myself trying to hold and fight the fish over my shoulder. At this moment, as though waiting to catch me at a disadvantage, a great wind swept up, parting the trees overhead, and a deluge of water descended upon us. It was the wet season, and I had already witnessed several storms from beneath shelter, but I had no idea what a tropical rain was like outdoors. It poured down, drenching me in a second. I was so disconcerted that, forgetting my situation, I swung round incautiously to close my tackle box. The canoe rocked violently. I abandoned the strain on the line, and the fish shook loose. In another moment I had overlooked this annoying circumstance. It was a question of getting in my line and trying to keep the canoe afloat. I have already

mentioned the extremely unstable character of the native fishing boat (canoa de pesca). I was brought up in a birchbark canoe, but this was quite different. The canoa does not have a round and comforting bottom, it has no keel, it is very narrow, and with two in it there is only about 4 ins. of freeboard. The next minute I was bailing desperately with my hat and making no impression as the canoe began to fill. Estevão turned us, and we headed for the launch while I redoubled my efforts. After a while we reached the lake. There were no longer any trees to protect us, the rain was blinding so that we could not see a yard, waves began to pour over the sides of the canoa, and the launch was gone. It really looked as if we would swamp and perish. Estevão did not even know how to swim. Just then, when our prospects seemed hopeless, the launch loomed up beside us.

The two following days I put in fishing for pirarucú (*Arapaima gigas*), of which I tell in another chapter, but between times I succeeded in catching a nice pacú-guassú (*Colossoma mitrei*) of 10 lbs. This is the third member of a blessed trinity, the other two being the pirapitinga and the tambaquý, without which the natives might easily starve to death. The pacú belongs to the same family as the tambaquý. It is the same shape, but has much smaller scales, and it is altogether a handsome fish with a dark olive body, shading to yellow on the belly. It grows to a large size—we caught one weighing 30 lbs. on the Alto Paraná, baiting with a wild orange. This fish, like the other two, has a great weakness for fruit, but in this case it fell for my "Chub-Wiggler," crushing it to such an extent that I could never use it again.

Lago Calado was 3 or 4 miles long. Beyond, to reach the Solimões, we had to negotiate a narrow channel called the Paraná de Lago Calado, a sort of creek, filled with water hyacinths. It took considerable trouble and exertion to make the passage, but on the last day before my new launch was due we went there. At the outlet where the stream joined the main river a group of Indians were engaged in fishing with handlines, and there were also some black bôtos in evidence—on which as usual I wasted further precious time. These Indians were a lively lot. They thought my attempt on the bôtos was exceedingly comic. Later, when I took the canoe with Estevão to try for smaller fish, they began mocking us, shouting that they were going after bôtos themselves. Estevão was thoroughly downcast and mortified by this banter. It was bad enough to find himself the object of derision, but when they made fun of his patrão (patron) that was stretching things too far. Floating downstream along the shore we were, however, finally rewarded by a heavy strike. The fish made a run of 30 yds.—behind my back, of course—but then stopped long enough to allow Estevão to turn the canoe. In a short time I found that my adversary had no fighting heart, and I hauled in a sorubim-piramicú (*Pseudoplatystoma fasciatum*). It was a catfish weighing 27 lbs., spotted like a rocking-horse, and grunting loudly like a pig. It was impossible to find room in the canoe for this gay but unsightly creature, so we towed it back to the launch. This time the joke was on the Indians. We had caught a fish, and they had caught nothing. Estevão let them have it with a volley of triumphant taunts that were no doubt spicy and obscene.

That evening I discussed with Kraus, and particularly with Sebastiana, who had more knowledge of the country, what itinerary I should follow. The *Theresa* had arrived, and I was intending to try farther afield, though I had no idea where to go. Sebastiana suggested Lago Grande and Lago de Piranhas. Kraus objected immediately to this last. He said it was too dangerous on account of the man-eating fish. Even the Indians kept away from it for that reason, he claimed. Of course this settled the matter. I had

to go and see a place like that. Without pretending to be the least bit heroic, it was obvious that the piranhas could not climb into the launch and devour me.

We set forth in the *Theresa* the next morning. She was a spanking little craft, about 30 ft. long, with a noisy diesel motor. There was a cabin amidships enclosing just enough space to sling a hammock. My captain was José Mathias, the sixteen-year-old son of the owner, who, with the bumptiousness of youth, was determined that everyone should be constantly aware of his position; then there was a nice clean-looking Indian named Francisco, who acted as cook; and finally there was the faithful but disreputable Estevão. I soon found that José was a Jehu. We roared away from our mooring with vertiginous abandon. In the hyacinth-choked Paraná de Lago Calado we made such a commotion that the fishy inhabitants were utterly terrified and began leaping from the water in an effort to escape destruction. The next moment we were deluged with a shower of silvery fish. Some jumped clear across the boat, others landed in the cockpit and were promptly transferred to buckets. Within a minute we had twenty bait fish on board, and were kept busy throwing back many more. These fish turned out to be branquinhas. We steered up the Solimões and, after stopping at the small village of Manacapurú for supplies, went on to Maracaty, which we reached that evening. So far as I could determine Maracaty was only a name. There was one tumbledown shack on the shore, but neither a soul nor another dwelling in sight. To tell the truth, except for Manacapurú, none of the places Sebastiana had mentioned seemed to have any reality, at least we could not find them. There were neither habitations, nor observable natural features. Following her directions I had made a rough chart, but we really had to proceed by instinct. We reached Lago de Piranhas all right, though we never located the landmarks she described. In the cartographic sections of several libraries I have since examined various "one to a million" maps of this area, and each is different from the other. The country really becomes wild, unexplored, and uninhabited within a few minutes' walk from even the largest town. In other words, when you get off a tram or trolley car in Amazonas, the jungle is already there to engulf you. Though we travelled about 200 miles in the *Theresa* we only saw one Indian after leaving Manacapurú, and perhaps three—at most four—deserted shanties throughout the trip.

At Maracaty we anchored near the base of a small island. Below, two waters came together in a considerable riffle, and there before my eyes the inescapable black bôtos were gambolling as usual in an endless series of loops. We prepared to spend the night. Francisco got dinner ready while I admired the winged cohabitants of that exotic scene. It was as if we were enclosed in an immense aviary. On all sides there were birds of every variety, but chiefly we saw parrots in thousands arching across the sky from one roosting place to another. Then there were night herons, limpkins, lily-runners, snake-birds, bitterns, egrets and many other species of herons large and small, while as night drew on, bats, swifts, and giant whip-poor-wills flitted above the murmurous waters.

Finally, when daylight had departed, there remained a small unknown bird, singing sweetly beneath the soft radiance of the moon. Among all of these, however, the creature that interested me the most was a magnificent fish-hawk, of the kind called gavião bello (*Busarellus nigricollis*) that occupied the dead limb of a tree within a few yards of the launch. There it perched for several days while we fished, supervising our activities with a bright but sardonic eye.

Maracaty was a meeting place of waters. I would go out in the canoe with Estevão, and in a few minutes we would be lost amid a maze of islets, divided by channels, through

which the river flowed in quite irrational directions. The pink and black bôtos would entice us on; we would circle an island and follow them for a while up a straightforward stream, but when it came to finding our way back all the reference points seemed changed and we inevitably kept taking the wrong turning. In any event, at the end we were led to conclude that the best angling was in the vicinity of the launch. I caught a great many fish there, mostly with bait. One variety, the pescada, is considered by the natives—though not by myself—to be even better eating than the tucunaré. It resembles the drum in shape and is of a silvery grey colour. The pescada belongs to the family Sciaenidae, of which nearly all the members are marine species, though a few like this one have adapted themselves to fresh water. It grows to a nice size, sometimes attaining 10 lbs. or more, but the largest we got was only a 3-pounder. This fish is rather timid, it frequents slow flowing water and lurks among rocks, or, as at this location, in the vicinity of reeds and marginal river growths. Here also I caught a dourada of 30 lbs. One might conclude from its name that the dourada is a golden fish like the dorado, but such is not the case. It is scaleless, and looks as if it had been white to start with and had subsequently weathered like old ivory to a more or less yellow tone. I have already mentioned this fish as being popular in the market of Pará, but my crew claimed it was inedible, and I did not insist on having it cooked. Besides this catfish we caught many others of three varieties: mapará (*Auchenipterus nuchalis*), a puny, pale blue-grey fish with long whiskers that I had seen neatly strung with river grasses in little bundles of a dozen together at the market place of Manáos—this in spite of the fact that the maparás are small and offer little nourishment; and then there were two kinds of “mailed” catfish, known as acary and bacú. They took pieces of fish quite readily, and put up a reasonably good defence on a light rod before I reeled them in. The acary (*Loricaria sp.*) was chocolate brown in colour, and was covered with continuous rings of scales, the rings overlapping each other like a series of tight-fitting flounces. This peculiar scale arrangement forms a veritable cuirasse, protecting the fish as effectively as though it were enclosed in the shell of a lobster. The bacú (*Doras costatus*) was dark grey in colour. It did not wear such a complete suit of armour as the acary, but had a row of scutes along its sides. There is a formidable spine at the front edge of the dorsal and pectoral fins in both these fish, and these alone should suffice to protect them from their enemies without recourse to armour. I did not try eating either of these fish. They seemed unappetising, but I am told that they are excellent, particularly the acary, which can be roasted in its shell in a most satisfactory manner.

It was during these days that Estevão demonstrated his skill with the tarafa. He would go out early each morning in the small canoe and, standing erect like an acrobat in that skittish skiff, somehow manœuvred it with the paddle while throwing the net, making use of hands, feet, and teeth all together in exquisite co-ordination. This uncouth and gawky Indian was able, in one of the most exacting and intricate of pursuits, to rival the lyric grace of a Nijinsky. In half an hour he would return with a bucket full of small fish, among which I distinguished various catfish, such as the maparás; acarás (Cichlidae), piranhas, branquinhas, sardinhas (*Chalcinus sp.*), numerous kinds of small pacús (*Mylossoma sp.*), and many other characins. Each time he brought in new varieties in a seemingly endless succession. I would impale them on the hooks of a trotline, without trying to identify them, in a final despairing attempt to decoy a black bôto.

At last I gave it up, with a bitter oath never to try for the damn things again. But I shall, of course—if I can possibly manage it—not the black bôtos; I think they are really



PLATE 40

TENPOUNDER (*ELOPS SAURUS*)
SPRINGER

The specimen on the left shows the Gular Plate

AMERICA
S. AFRICA

hopeless. During my stay at Maracaty I offered them every opportunity to hook themselves. They would pass frequently within range of my lures, and one of them even hit my line with its tail, but there was never an indication that they would fall for my deceits. The pink bôtos are different, however. It was not until much later that I discovered how and on what they fed. I have already mentioned that they do not loop in and out of the water like other porpoises. Instead, they dive, stay under for a minute or two, and then come up to the surface where they remain for a short time before again submerging. This behaviour should have tipped me off to the self-evident fact that they fed on bottom-living fish, though I would still have been uncertain as to what kinds they preferred. I have since been told that it is precisely these armoured catfish, such as the acary and the bacú, that form the main course on their menus, and apparently the armour and sharp spines only serve to tickle their palates. These botôs, furthermore, feed more or less in certain regular locations. It would thus not be difficult to bait a hook with a live armoured catfish and sink it at a suitable spot with fairly good prospects for some amazing sport. What would happen exactly is hard to say, but I would judge that landing a porpoise in the Amazon from a dug-out canoe would far exceed in difficulty the capture of tunas or swordfish from a launch in the open sea. At any rate, here is a challenge to our big game anglers, and a fishing problem that still requires imaginative pioneering. *Nota bene*: the museums of the world are all crying for specimens of *Inia geoffroyensis*—much needed for study purposes. Of course it would be very easy to harpoon the bôtos, the feat is to catch them legitimately on rod and line.

Leaving Maracaty we chugged west, and more by luck than skill hit on the paraná that led north to Lago Grande, which on two large scale maps, at any rate, is incorrectly called Lago Codajaz, and is displaced 10 to 20 miles from its true position. In this lake, near a small promontory, I caught several tucunarés on dry flies with No. 15 (English No. 0) hooks. The tucunarés at dusk were dimpling the surface in a retired little bay. It was impossible to determine at what they were rising, but they took an Iron Blue Dun without hesitation. Along the shore of this lake I also had to do with a number of small piranhas (*Serrasalmus nattereri*). I had been trying for a pirarucú, and kept losing my bait without getting a bite. This was the second occasion I had been annoyed in this way, and I had no doubt that piranhas were to blame. It occurred to me that it was high time to teach these little spoil-sports a lesson. Accordingly I put up a trout rod, and rigged the line with a float, attaching a No. 2 (English No. 13) hook to a short leader of fine wire. Without Kostia to distract me with conversation on a high intellectual plane I thought it would be a simple matter to catch the little devils, but I was quickly undeceived. My bait kept disappearing without a bob from the float. I began reducing the size of my hook and also the size of the bait. Piranhas have, in fact, small mouths, and these were particularly small piranhas. It was not until I was using a No. 12 (English No. 3) hook that I began to get results, but then I captured plenty. With one of them I tried an experiment. Before I removed the piranhas from the hook I would kill them with a knife, but this one had wriggled loose beneath a board and was still alive some time later. Breaking off a twig from a nearby bush I inserted the end in its mouth, and was much surprised when the little fiend, though almost dead, bit off the end of the twig as clean as a whistle. The biting powers of piranhas is, in fact, something to wonder at. The teeth are triangular, pointed, and razor sharp. Those in the lower jaw fit into those in the upper like meshed gears, and are capable of shearing off anything that comes between them as easily as though they were a pair of scissors. I was aware of this, but still could not

believe it. Some months before, at the aquarium in London, the director, E. G. Boulenger, had for my special enlightenment dropped a piece of meat into a tank containing a small piranha (*S. spilopleura*). The fish watched the meat falling slowly through the water, and moved forward only far enough to intercept the morsel. When the meat arrived opposite, the piranha opened its mouth and bit off a piece, exactly the way a small boy might take a bite out of an apple. The piranha, however, unlike the small boy, had no hands to grasp the meat, and yet was able to remove a portion without deflecting the remainder, or even causing it to wobble in its steady descent to the bottom of the tank. W. H. Brunskill, of the Shedd Aquarium, has described to me a similar incident. He saw a piranha bite the middle section out of a small dead fish while the head and tail, as if suddenly detached from each other by a conjuring trick, continued falling through the water with no relative change of position nor any observable oscillation to indicate that a moment before the two parts had belonged very substantially to the same body. It was this ability of the piranhas to bite off pieces of bait that had accounted for my earlier defeats. Unless the piranhas happened to take the barb in their mouths they could easily strip the hooks without revealing what they were doing.

There are countless stories about piranhas. Theodore Roosevelt claimed that they could bite through a metal hook. N. E. Pearson says he has observed piranhas, 7 ins. long, that were able to bite through the shanks of hooks measuring about 1 in. over all. W. R. Allen states that it is nearly impossible to use a seine where piranhas are present, as they bite their way out so rapidly that a new net may easily be destroyed the first time it is placed in the water. He goes on to list a number of incidents in which persons have been maimed by piranhas. Usually fingers or toes were bitten off—even the famous Colonel Rondon lost a toe to a piranha. Still more grave, Allen gives reports of persons being eaten by these fearsome little furies. Piranhas swim in considerable schools, and the taint of blood in the water brings them swarming to the attack. Any animals, even alligators, will be quickly bitten to pieces and gulped down if they are injured and bleed in piranha-infested waters. Franz Eichhorn went to considerable trouble to witness and record a piranha feast. In the vicinity of Marajó he built a sub-aqueous chamber and fitted it with a cinema camera behind a watertight window. Then he made tests with various kinds of bait. His most dramatic experiment was when he killed a capivara—a giant aquatic rodent weighing about 100 lbs.—and lowered the body into the water beside the window. With a stop-watch he timed how long it took the piranhas to devour the capivara. Within less than fifty-five seconds they had reduced it to a skeleton. Subsequent examination of the film showed that the piranhas had even bitten through some of the ribs in their mad lust to get at the meat.

We left our anchorage in Lago Grande and, heading for the far end of the lake, after some manœuvring managed to feel our way through a shallow passage into a wide channel flowing almost due west. At first we took the wrong turning, but finally came to a fork where the junction of two streams created a lagoon of almost stagnant water. At this point there were at least 100 caymans floating languidly on the surface, without exhibiting the slightest fear or even awareness of our presence. Besides these there were great numbers of cormorants and other fish-eating birds, showing clearly that this was an exceptionally good place for angling. It seemed to me that "Cayman Corner" was an appropriate name for this very likely-looking fishing ground, but I decided to test it on our way back, and we hurried on, following the Paraná de Codajaz for several hours until we turned north and shortly entered the Lago de Piranhas, which I have failed

to find marked on any map. It is only a small lake in any case, less than half a mile across, and seemingly as round as a saucer. In every direction a marshy campaign extended to the horizon, except where for no rhyme or reason a few trees clustered together on both sides of the entrance after the manner of a triumphal arch. The passage was about 25 yds. wide, and I could see by the slight current that this must be the overflow from an extensive area of drainage accumulated in the reservoir formed by the lake. It occurred to me at once that here was an excellent location for an espinhel (trotline), so I transhipped into the small canoe with Estevão and, after great exertion in a blistering heat, managed to get the espinhel across the stream and safely tied at each end to a convenient tree trunk. There were six or seven subsidiary lines of suitable length fastened along the main line at intervals. Each had about 3 ft. of piano wire leader, the hooks were fairly stout and were baited with pieces of fish. Where the subsidiary lines were attached I tied large chunks of cork, about 4 ins. square, to help support the main line. Having succeeded in getting this complex contraption to float properly, I was satisfied that no fish could enter or leave the lake without encountering my lures.

We then returned to the launch, which was anchored in about the centre of the lake so as to avoid the black flies (*Simulium sp.*) and mosquitoes. I may say that for this sort of trip a fine mesh mosquito net is a necessity at night, and in the daytime a Flit gun is also extremely desirable. Equipped with these I was never troubled by insect pests. This evening turned out to be the most exquisite of all I passed in that bewitching lar.d. Water birds of every description were winging across the sky, their silhouettes picked out and glistening in fiery tones amid the changing glories of the setting sun; frogs, toads and insects were singing a chorus that was really symphonic. Around my boat a solitary pink porpoise patrolled, coming up to blow at intervals so regular as to seem mechanical. Francisco, roused from his usual lethargy, prepared a meal that was almost savoury. I issued a ration of cachaça (native rum) to the crew. A fine contentment settled on us all.

In the morning my first care was to inspect the trotline. There I discovered a condition of affairs so bizarre that reflecting on it now, I still feel I must have been mistaken. One glance showed that the trotline was gone, but a short search revealed the ends still knotted to the tree trunks. Following these ends down, we soon found that they were supported by chunks of cork, and were floating half hidden amid the tangled grasses along the banks. I began examining the hooks of the subsidiary lines. Those that remained were all bare, but many of them had vanished with the leaders. The subsidiary lines in these cases had been severed as though by a knife blade. The main line had apparently been cut in two places, since a section was missing. This was all strange enough, but my next discovery dumbfounded me. The cork floats had been attacked and partly devoured! In several cases the square edges of the corks were gone. One of them was no longer a cube but had become a roundish lump. In another I could see where a mouthful the size of a nutmeg had been scooped out as neatly as with a carpenter's gouge. Anyone who has tried to cut pieces out of a cork knows what a tough job it is even with a sharp knife, but this had been easily accomplished by the vandals who had destroyed my tackle. There seemed to be no doubt what had happened. I imagine one or several piranhas had taken my baits and hooked themselves. The remaining piranhas, in what was probably a huge school of the fish, noticing the distress of the captives, and excited by the taint of blood in the water, had thrown themselves on their fellows. Growing more and more crazed with the blood they had attacked everything moving in the vicinity. The quivering corks and lines, shaken by the efforts

of the fish to escape, must have appeared alive and were likewise attacked; the place had become a shambles with snapping razor teeth and bleeding fish horribly intermingled. It must have been a spectacle.

I salvaged what I could of my corks and returned ruefully to the lancha. Thinking back to the day before when I had so carelessly dabbled my hands in the stream while setting out the trotline, I could not help shivering at the thought of my escape from being seriously bitten. If piranhas would attack so bloodless an object as a piece of cork it was obviously a lunatic proceeding to give them an opportunity of grabbing off a finger, or a mouthful out of one's arm.

As it so happened this was my last experience of fishing in the Amazon. An Indian suddenly appeared out of the blue with an urgent message that summoned me back to civilisation. I had no time to catch these piranhas, which were obviously large fish. One variety, *S. rhombeus*, grows to 8 lbs. I was also unable to journey up the Rio Purus, that enters the Rio Solimões from the south not far above where we were. The Rio Purus is one of the habitats of the tucunaré-branco (*Cichla temensis*) the only really close relative of the golden tucunaré. *Temensis* has a peculiar distribution. It is present in the Orinoco but not in the Essequibo, where *ocellaris* occurs. It has also been reported from the Negro, the Marañon and other upstream tributaries, but it is little known generally, and in fact Francesca LaMonte—for whose cordial assistance in preparing these chapters I am more than indebted—has remarked in its connection, "*Cichla temensis* seems to be a neglected fish." This is a pity since from an angling standpoint it undoubtedly possesses all the attributes one could desire.

There were, of course, dozens of kinds of sporting or coarse fish that I did not encounter in the Amazon, the dourado (*Salminus affinis*) for instance, which belongs to the same genus as the dorado of the Alto Paraná. The dourado is not to be expected until one reaches much farther upstream, in the vicinity of Iquitos. I have discovered no accounts of anyone ever angling for it in the Amazon. Other fish of interest are: the aruaná (*Osteoglossum bicirrhosum*), a fish closely related to the pirarucú; the acará-assú (*Astronotus ocellatus*) and the jacundá-coroa (*Crenicichla saxatilis*), both of the Cichlidae family; the pirapucú (*Xiphostoma cuvieri*) belonging to a branch of the Characidae; and the obese jahú (*Paulicea lütkeni*), a huge catfish. The aruaná is a very strange looking, slender fish with large scales and two peculiar barbels under its chin. It swims generally near the surface and is thus a target for Indians with their arrows. It will, however, take a trolled bait, or, for choice, a small live fish, and will put up a good fight on a light rod. The aruaná grows to a length of more than 3 ft., and a weight of about 6 lbs. The acará-assú, or apaiary, does not attain much over $\frac{1}{2}$ lb. It makes excellent eating and can be caught baiting with worms. The jacundá-coroa is also a small fish that will weigh about 1 lb., and can be caught in the same commonplace way along reedy shores in clear water. The pirapucú recalls the dourado, but is more cylindrical in shape and has a more pointed snout. It is exceedingly carnivorous, and lives like the dourado on small fish that it captures in the fast waters it frequents. Pirapucús have been taken in the Rio Madeira weighing up to 22 lbs. The jahú is not worth catching; I only mention it in case someone should happen to get such a loathsome animal on his line. The fish is terribly fat for its length. Magalhães states that a jahú weighing 176 lbs. only measured 62 ins. Finally, and most interesting of all the fish of the Amazon, there remains the famous pirarucú; but of this important and intriguing creature I have written in another chapter.

THE PIRARUCÚ, OR ARAPAIMA, OF THE SOUTH AMERICAN TROPICS

By LEANDER J. McCORMICK



THE giant pirarucú is in many respects an extremely important animal, and yet it is practically unknown outside the areas where it is indigenous. This is all the more remarkable since it occupies a special niche in dictionaries, encyclopædias, and general books on ichthyology, being usually described as the largest of fresh water fish.

Though the pirarucú was undoubtedly first observed by white men in the Amazon, where it has always held a top position in the nutritional economy, its scientific designation, *Arapaima gigas*, derives from the native name "Arapaima," or "Warapaima," by which it is known among the Macusi Indians of Guiana. It is ironical in this connection that little attention is paid to it in the Guianas, where the Macusis let it rather severely alone, since they much prefer the flesh of other kinds of fish.

The arapaima belongs to the ancient order of Isospondyli, which also includes the herrings, tarpons, salmons and trouts, but in appearance it differs greatly from any of these. To a visitor from the north it recalls some prehistoric creature, with its sinister, depressed snout, and peculiar arrangement of dorsal and anal fins grouped together so unexpectedly close to its tail. Recently the arapaima has been removed from the family Osteoglossidae, to which it had originally been assigned among other reasons on account of its bony tongue, and is now the sole representative of the family Arapaimidae. In any case the arapaima has few close relatives; in South America there is only the aruana (*Osteoglossum bicirrhosum*); in the Upper Nile there is the bellie (*Heterotis niloticus*); and in the Burdekin River of Australia there is the barramundi (*Scleropages leichhardti*) with another species found in Sumatra and Borneo. It would be difficult for relatives to live farther apart from each other than do the osteoglossids. There is, however, a strikingly parallel distribution among the lungfish (Dipneusti), which are also found inhabiting South America, Africa and Australia. If the Afro-South American distribution of the characins and cichlids is also taken into account, here are no less than four examples of an eccentric scattering of fresh water fish over the globe which at first glance can only have occurred via former land connections between South America and Africa, and at a still earlier epoch between Africa and Australia. I am convinced that every ichthyologist in his heart of hearts still clings to these land connections, but such a howl has been let loose by other scientists against the theory that it is now only sustained among fish lovers behind closed doors. The fact is, however, that if you get an ichthyologist to yourself, and talk to him sympathetically, before long you will find him confessing

his belief in a land connection. Besides, there are all those books by great ichthyologists, who have stated in unequivocal terms that there is no other explanation possible.

In appearance the pirarucú is startling not only because of its size, but also for its colour. The fish has a long sub-cylindrical body that is covered with large olive-green scales, which shade from very dark on the back to very light on the belly. Beginning about half way along the body these scales are tinged at the rear edges with a vivid red hue, which suffuses them more and more until towards the tail they have become almost entirely scarlet. It is from this colour that the pirarucú gets its name. In the Tupi language "pirá" means fish, while "urucú" is the name of a bush bearing flaming red seeds from which the annato dye is obtained in Amazonas. The shape of the fish, when one has become used to it, will appear completely logical. At first one feels it is too long for its girth, but in point of fact the pirarucú is well proportioned, and, as I shall show later, weighs more per inch than one would be led to suppose.

When I set out for the Amazon I had particularly in mind the possibility of making an attempt to catch pirarucú on rod and line. I had discovered only one account of this ever having been accomplished before. In September, 1913, a party led by Sir Walter Egerton, with two rods angling at a time, succeeded in catching seven of these fish in two and a half hours. This took place in a pool on the Simoni, a small tributary of the River Rupununi, in British Guiana. Tarpon rods were used with tarpon hooks attached to the lines by piano wire leaders. The type of reel employed was not mentioned. The hooks were baited with chunks of aruana fish, measuring about $2\frac{1}{2}$ ins. square. In his description of the event Sir Walter states that the fish took the bait almost immediately, and gave an excellent fight with several jumps and plenty of head-shaking to throw the hooks. The largest fish weighed 200 lbs., and measured 82 ins., with a girth of 37. In the course of playing the fish it towed the corial with two men in it up and down the pool. He also states that one very large arapaima got away from him after running out all his line. He believed that it must have weighed 300 lbs. Elsewhere I had read that the natives of the Amazon catch pirarucús on night lines, without using a rod, of course. As a consequence of this information I brought with me rods and tackle capable of handling the fish no matter how big they came.

Within a few hours of reaching Belém I had my first view of pirarucús at the Museu Emilio Goeldi, where several were swimming leisurely about in a small pond. They looked immense. Every so often they would come to the surface and gulp a mouthful of air, as is their habit. I was informed that large quantities of pirarucú meat is regularly shipped to Belém, where it is consumed by the poorer classes. The flesh when offered for sale is called pirahém. It is prepared in the form of long thin strips which have been dried in the sun and smell to high heaven. Pirahém is a sort of iron ration on which the inhabitants of Amazonas depend for any occasion, whether it is only a picnic or a protracted expedition into the interior. It furnishes a large part of the protein intake in their diet, and, though more important to them, it occupies somewhat the position of ham or Bologna sausage among people in northern latitudes.

I have already related in the chapter on tucunaré how for my first fishing I went downstream from Manáos to where the Rio Negro was joined by the Rio Solimões. Turning up the Solimões after about a mile we came to a rather narrow furo (channel) on the left bank that connected with a small lake. In our launch, the *Pirata*, we circled this lake, and were shortly rewarded by the sight of a pirarucú plunging about among the rushes and aquatic plants along the shore. After the manner of pirarucús it was

chasing small fish out of their refuge. Continuing, we came at intervals upon four Indians in their canoes with harpoons poised waiting for the pirarucú to approach them. This is, indeed, the regular way in which pirarucús are secured. The Indians sit motionless for hours at a time until a fish comes within range. The water may be hopelessly opaque, and one would expect that this would save the fish, but as it swims it expels a small stream of bubbles which betray its position in the same way that the course of a torpedo is revealed in warfare. The Indian waits patiently until he sees the trail of bubbles passing close enough, and hurls his harpoon, guessing at what depth the pirarucú is probably swimming. During the rainy season, when there is much more water to be covered, an Indian will in this manner kill one or perhaps two pirarucús a week, while in the dry season he may get as many as three or four in a day, if he is lucky. The harpoon used has a detachable iron head so that the shaft will float off and be out of the way while the Indian plays the fish on a stout cord. I must add that this sort of fishing suits the Indians perfectly. All they have to remember is to sit still and do nothing, at both of which pastimes they are champions. Statistics as to how many pirarucús are captured in this one-at-a-time way are difficult to obtain. Le Cointe states that in the year 1917, alone, some 3,000,000 lbs. of dried pirarucú were shipped from Manáos to Belém. That was an exceptional year, but allowing 40 lbs. of pirahém per fish it would seem safe to estimate that at least 100,000 of these huge fish are captured annually in the Amazon valley.

We anchored along the shore of the lake and tried still-fishing for the pirarucú. The sun blazed down while we watched some magnificent hawks, called uiracú (*Morphnus guianensis*), catching several fish, but we caught nothing. After a considerable lapse of time our patience began to run out, though I am not usually troubled that way when angling. This pirarucú fishing is different, however, from most other kinds. It is more like whaling than anything else. Unless one sees the fish, it is not much use going after it. There was in this instance only that single pirarucú in the lake, and the moment we had settled down to fish it went off in the opposite direction. We watched, and finally came to the conclusion that it had eluded the first of the Indians, beyond him we could not see what was happening, but I felt somewhat relieved at its escape without quite knowing why. We went back to Manáos through a new furo and passed another Indian who was trying to harpoon a peixe boi (manatee) at a spot which was known as a "comedia," that is, a regular eating place for manatees. Apparently they are creatures of habit, and like to frequent the same restaurants day after day—even if it kills them.

My next experience with a pirarucú was at Lago Calado. I had been angling for tucunaré and other fish when I got a report through my disreputable boatman, Estevão, that a pirarucú had been observed swimming about a mile from the fazenda, along the north shore of the lake. It really seems ridiculous that one should go to look for a free-swimming fish and expect to encounter it where it was last seen, but that is the way with pirarucús. If they take up a particular beat for their own fishing it is likely they will continue in that vicinity for some time. We untied the lancha and set off at once. On this occasion I failed to find the pirarucú—I have already told in the chapter on tucunaré how Estevão and I were nearly drowned instead. The next day, however, we went to the same location, and there was the pirarucú, exactly as advertised. I had with me in the lancha, besides Estevão and Paulo, a villainous old Portuguese named Sophia, who was of no help at all, though convinced that our whole enterprise depended on him. Our chief care was not to alarm the pirarucú. We therefore drifted down, with the motors cut, until we reached a small draw which seemed to be the centre of our fish's

operations. There we anchored, and I got Estevão to paddle over to where a bush overhung the entrance of the draw. To the bush he attached my line by a light piece of string, having first determined the depth of the water, so that the hook would be held off the bottom. For bait I was using half a tucunaré. Estevão then went out with the tarafa and caught a number of small fish for live bait. After a while I substituted one of these, a sardinha, for the tucunaré. This angling became exciting. The pirarucú would go off into the draw, and would then return after about twenty minutes, passing within close range of my hook. Each time I was expecting to get a fierce tug, but nothing happened. Sophia proved most annoying during these moments. I could not stop him from talking in a loud voice, though I daresay he did no harm. At any rate, the pirarucú did not seem frightened, and even ventured up along the shore between the lancha and the bank without paying attention to any of us. In the last of these forays it actually slapped the launch a hard blow with its tail, and with this final display of bravado left me, disconsolate, for parts unknown.

This fishing had occupied several hours, and it had been complicated by misadventures with the bait. There were piranhas about, and every time the pirarucú went off into the draw I had to send Estevão in the canoe to make sure the bait was still intact. Twice it seemed that the hook must have been bare at the critical instant when the pirarucú passed by, but at other times there was no reason why the bait should not have been taken. In any case, it would appear that the best bait for pirarucú is a piece cut from the body of an aruana. Why this should be I have no idea. The aruana, as a matter of fact, is the only relative of the pirarucú in South America, but it is generally conceded that there is nothing like aruana meat to entice pirarucús.

I only had one more try for a pirarucú. It was in Lago Grande, near the small promontory called Seralima. The day was exceedingly hot, and Lago Grande was as flat and smooth as a mirror. Estevão had netted me some small fish and for no reason at all I baited the hook on my heavy tackle with one of them. I had hardly put it out and got settled than I noticed a pirarucú splashing 100 yds. away. This business of splashing is peculiar, and I am almost inclined to think that it is done on purpose to flush the small fish out of their cover. Whenever I saw a pirarucú thus engaged it was noticeable that only the rear half of the fish was exposed. The head did not come out of the water, but one would see all of the tail with the dorsal and anal fins, which really functioned as a unit, and sometimes the tail would slap the water making quite a noise as well as commotion. On this particular occasion the pirarucú was getting nearer every moment. Estevão and I sat motionless in the canoe, while my heart began to flutter in anticipation. Just when it looked probable that the pirarucú would see my bait, it turned back and gradually, without apology or excuse, disappeared from view in the shimmering haze of the distance. This must be the sort of experience that takes place constantly among the Indians—a sort of how-near-and-yet-so-far episode, all the more infuriating because hopes have been raised high. With the Indians it is not serious, however, because a day or a week means little in their lives; but this turned out to be my last chance at the fish. I must point out that though it was a bad time of year for pirarucú, when they are usually dispersed over a wide area, I had nevertheless had dealings with three of them, and in two cases might have come to conclusions with them, if a little luck had been on my side.

Since then, thanks to the kindly interest of Vincent Roth, Curator of the museum at Georgetown, I have been able to gather further information about angling for arapaima.



PLATE 41

PIKE-PERCH (*LUCIOPERCA LUCIOPERCA*)
WELS (*SILURUS GLANIS*)

EUROPE

Through him, and the good offices of P. S. Peberdy, District Commissioner, I was put in touch with Edward McTurk, a rancher, who settled many years ago along the Rupununi River at a place called Karanambu. McTurk is a competent observer and an excellent authority on local bushlore as well as being an ingenious sportsman. For many years now he has been successful in capturing arapaima by a method he has himself developed. The fishing is done quite close to his ranch in a lagoon through which flows a small tributary of the Rupununi, which is itself a tributary of the Essequibo. Though he has been successful at all times of the year, he considers the dry season, between the beginning of October and the end of March, to be the most profitable period provided the river is not flooded over its banks. The fishing is done from a 20-ft. dugout canoe, or from a 15-ft. balahoo (punt). McTurk does not bother about bait until he reaches the lagoon, where one of his Indians generally manages to shoot an aruana with bow and arrow. If, however, there are no aruanas to be found, lukananis, huris (*Hoplerythrinus unitaeniatus*), or other fish can be quickly secured by trolling a spoon or spinner. When aruana is used the fish is scaled and sliced crosswise into steaks 2 or 3 ins. wide. Other kinds of fish are cut up into similar sizes. The tackle consists of a number of floats made of light wood, 9 or 10 ins. long, and as thick as a man's wrist. To the middle of each of these is attached a stout piece of cord or clothes line with a diameter of about $\frac{1}{8}$ in. These lines are 8 to 12 ft. long. At the other end No. 10/0 (English No. 24) hooks are whipped on to the lines. The hooks are now inserted into the cut bait so that the barbs are exposed on the far side. When everything is ready the floats with the baited hooks and lines are scattered haphazard over the lagoon. The baits in some cases will be reposing on the bottom, in others floating free according to the depth. In a short time some of the floats will be seen moving or bobbing along the surface. If any of them moves at an even speed, or disappears and comes up some distance off, and then continues moving at the same speed as before, it can be assumed that an arapaima has taken the bait. Often several of the baits will be taken at the same time. One of these floats is pursued, while McTurk stands in the prow of the canoe holding a light forked stick about 15 ft. long. Draped over the fork is one end of a 60 ft. clothesline, that has been formed into a slip noose, the rest of the line being coiled ready in the boat for when it is needed. Eventually the canoe catches up with the selected float, and McTurk, extending the forked stick, secures the float in the noose and pulls it tight. Now it is possible to play the fish on the clothes line, and every effort is made to get within range so as to harpoon the arapaima. The harpoon has a detachable head to which is tied another line. When the fish has been harpooned it is played on both lines, the angler standing in the prow, and hangs on to the lines as he directs the steering of the canoe until the fish is exhausted. A heavy hammer is used to kill the fish before trying to lift it into the canoe.

It can be seen that this is an exciting and thoroughly sporting way to catch these giant fish. To snare the float in the noose requires skill, while the subsequent play of the arapaima on such a short hand line calls for both finesse, agility, and a sustained application of considerable strength. Some of the arapaimas do a lot of jumping, and have occasionally tangled the boat and its occupants in the line. McTurk says he once saw an arapaima that had been harpooned jump into and sink two small canoes in quick succession. The fish then got away with the harpoon and line. The arapaima does not give up easily, and when it has been brought in close to the canoe it needs specially careful watching. At such times the arm of the angler could easily be broken or injured on the gunwale of the boat, or he might get seriously hurt by the float, which is continually

passing back and forth through his hands as he plays the fish. When the time arrives for planting the harpoon, the spot aimed at is just in front of the dorsal fin, where, if the point strikes the spinal cord, the fish will be paralysed and quickly overcome.

McTurk says that a battle of this kind will go on for at least an hour. As soon as the first fish has been captured the canoes set out in pursuit of another moving float. It is likely, indeed, that several fish can be secured in this manner one after the other. Arapaima can also be caught still-fishing from the shore, or they will take a spinner trolled from a boat with an outboard motor. They are usually found in water from 8 to 16 ft. deep, but they have also been observed in quite shallow water. Considering his lack of suitable tackle McTurk deserves much credit for his improvisations. A No. 10/0 hook is really ludicrously small for a fish of such giant proportions. A No. 12/0 hook, heavily reinforced, is considered none too large for tarpon, but the hooks he uses are not only small, but poorly designed and, in fact, quite inadequate. It seems that they are often straightened or broken in the course of the angling. The surprising thing is that McTurk has apparently found no necessity for metal leaders, and has been able to get satisfactory results with the bait attached to such a heavy and noticeable rope, thereby indicating a complete absence of timidity among the arapaima. That their numbers are being steadily reduced is a consequence that must lead eventually to their extinction. But the foolhardiness of these fish is natural enough. In the waters of its habitat the arapaima is undoubtedly the dominant animal. It can outswim the caymans; its capacious mouth is large enough to swallow piranhas whole; apart from man, it has no enemies except the jaguar. McTurk reports having twice seen evidence that a jaguar had captured and eaten an arapaima. He believes that the jaguar "boxes" the fish ashore when it passes near enough to the river bank. This does not surprise him, since jaguars, he says, are able to seize and kill large caymans in spite of their well-protected bodies and heavily armed jaws.

For some unexplained reason the Rupununi appears to be a particularly favoured home of the arapaima. If it is found in other parts of the Essequibo I have been unable to verify the fact. At any rate, there is no question that the easiest way to make an attempt on this fish is to fly from Georgetown to Karanambu, where McTurk has accommodation available for two or three anglers at a time. Karanambu, incidentally, is only a short distance from the River Simoni, in which Sir Walter Egerton had such successful angling in 1913. There is a plane service every two weeks between Georgetown and Karanambu so one is not entirely out of touch with civilisation.

On the Amazon, at Manáos, the seasons come about three months earlier than in Guiana. The dry season starts in June or July, and continues until the end of November. I have already described the difficulties of getting a launch at Manáos. Everything connected with organising such an expedition in Brazil will require considerable forethought and planning. Nevertheless, there are people at Manáos who could make the necessary arrangements for an angler, if sufficient time is allowed them. On the Amazon, however, the angler will find no one like McTurk to lead him to the fish. He will have to search for them himself, using his imagination, but I am convinced that he will get plenty of sport, if he goes there when the water is low.

It occurs to me that fishing for arapaima should have great appeal to those anglers who enjoy trying for "records"—that is to say, the majority of anglers. The field is so extraordinarily open, and with this fish almost anything can happen. I have already mentioned that the arapaima is generally recognised as the largest of fresh water fish.

By this, of course, is meant *strictly* fresh water fish, since the anadromous sturgeons of the Volga are clearly larger. Looking at what various authorities have to say about the size of arapaimas we find: 15 ft. long, 500 lbs. weight, in Webster's Unabridged Dictionary; 15 ft. long, in the Encyclopædia Britannica; 15 ft. long, 400 lbs. weight, in the Century Dictionary and Cyclopædia; 15 ft. long, 400 lbs. weight in *Fishes* by David Starr Jordan; 15 ft. long and 400 lbs. in *History of Fishes* by J. R. Norman; 15 ft. long and 400 lbs., according to Carl H. Eigenmann, great expert on South American fish. It is rather humorous to think that all these admitted authorities, and many others, are certainly wrong.

This question of the size to which arapaimas grow is indeed one that anglers could assist in answering. In fact, the fish badly needs to be rooted out of the miasma of ignorance in which it and its whole life story is still shrouded. There is little doubt but that the figures given by the various authorities above have been inspired by the naturalist Schomburgk. He visited Guiana in 1836, and stated subsequently that, according to verbal reports of Indians, the arapaima grows to 15 ft. and a weight of 410 lbs. These figures have been adhered to for more than a hundred years without anyone stopping to consider what kind of shape such a fish would have; but any angler with experience of large fish would be sure to notice the disproportion between length and weight. In order to illustrate what dimensions one may properly expect, I am listing below the figures for various actual, as opposed to imaginary, arapaimas. These include one measured by Godofredo Hagmann at the zoo in Belém; a fish brought back to the British Museum by Schomburgk; the largest fish caught by Sir Walter Egerton; and three fish caught by Edward McTurk's party on the 13th May, 1947. In the fourth column of the table I have shown the theoretic weight of these fish, calculated according to the formula of William Wood.

<i>Fish</i>	<i>Length inches</i>	<i>Girth inches</i>	<i>Actual weight pounds</i>	<i>Formula weight pounds</i>
Hagmann	76.4	39.4	140.1	138.3
Schomburgk	97.5	43	—	225
Egerton	82	37	200	140
McTurk No. 1	83.75	36.75	203	141.8
McTurk No. 2	80	36	148	129
McTurk No. 3	71	34	110	103

From this table several points emerge. Hagmann's fish was one of those I had watched for hours in the Museu Goeldi. It died, and the measurements are interesting because the actual weight coincides almost exactly with the formula weight. The formula is: multiply the length in inches by the square of the girth in inches, divide the product by 800, and you get the weight in pounds. Unfortunately, the girth is a difficult measurement to take. The fish should be lying on a flat surface, and the measurement should be taken with a tape at the thickest part. In the other five fish it is seen that the formula weight falls far below the actual weight. The reason for this disparity is that the arapaima is not spindle-shaped like most fish. It is built more like a railway tie, solid and bulky from head to tail. This disparity between actual and formula weights is greater in proportion to the size of the fish. In Egerton's fish, for instance, the actual weight is 44 per cent higher than the formula weight; whereas in McTurk No. 2 it is 15 per cent higher, and in McTurk No. 3 it is 7 per cent. We are now in a position to calculate the weight of Schomburgk's fish. According to the formula it should weigh 225 lbs., and we can safely add at least 44 per cent to this so that we get an actual weight of 324 lbs. If, then, a 97.5 in. fish weighs 324 lbs., is it reasonable to conclude that a 180 in.

(15 ft.) fish weighs only 410 lbs? Of course it is not. That's absurd. There is another calculation one can make with the formula which shows that a 180-in.-410 lb. fish would have a girth of only 42.7 ins. In other words, it would have a smaller girth than Schomburgk's fish though almost twice as long. This again is absurd.

Finally, there is the comparison one can make with other large fish. A great white shark (*Carcharodon*) measuring 176 ins., weighed 1,919 lbs; a sturgeon (*Huso*) measuring 170 ins., weighed 2,250 lbs. Since, by a comparison I have worked out, arapaimas and sturgeons weigh approximately the same inch for inch, it is to be presumed that a 15-ft. arapaima would have to weigh at least 2,000 lbs. No one has ever suggested that this fish attains to such a weight.

If there is little likelihood that anglers will encounter any 2,000-lb. arapaimas, there may nonetheless be opportunities for finding some that are plenty big enough. I spent a lot of time on the Amazon trying to discover how large they grow, asking everyone I met: dealers in pirahém, for instance, as well as Indians, and professional fishermen who come over regularly from Portugal to fish in the Amazon. I have, of course, noticed what Agenor Couto de Magalhães has written on this point, and have personally cross-examined Le Cointe and Hagmann in this regard. Naturally McTurk's opinion has been given due respect. Finally there is the learned paper of E. W. Gudger, and the summary in the splendid book by W. R. Allen of all printed opinions to which he has had access. Amid this welter of figures the greatest weight claimed occurs in a book by Paul Fountain, who writes that he personally helped kill a pirarucú on the Rio Negro which weighed 628 lbs., even after it had been cut in pieces. I reject this statement, not because it is altogether impossible, but because he also claims that the pirarucús on the Amazon average 400 to 500 lbs., which is manifestly untrue. Then there is Dr Godfrey Davidson, who has lived in remote parts of the Guianas. He has written me that in some huge unknown lakes on the east bank of the Uaçá River about 20 miles above its junction with the Oyapock, he caught some very big fish. "Too long and wide to fit into a fifteen-foot canoe." He goes on, "I imagine some of the fish I killed up there would weigh 300 to 400 pounds. I estimate this weight as one fish filled up to busting point 181 Indians. That means quite some food!" A statement such as this does not help very much. It is too vague, while seeming to imply a great deal.

These are the only statements I have found concerning the weight of really large arapaimas. As for lengths, I have estimates running all the way from 5 to no less than 22 ft.—a startling diversity of opinion that proves once again how little is known concerning this fabulous fish. Magalhães, always a gallant booster of things Amazonian, in this instance has shown himself too modest, with a maximum length of only 68 ins., while at the other extreme I have "twenty-two feet," in writing, over the signature of a well-known ichthyologist, whose identity I will keep inviolate. Sifting everything I have heard and read, the most convincing judgment was one offered by a Portuguese fisherman, who for twenty-five years had been going regularly to the Amazon to fish commercially. With a friend to act as interpreter, I had invaded the steerage of the ship where this man and a group of other fishermen were gathered. Some wine was opened, and when a few ceremonious toasts had been drunk I asked my stock question: "How big do pirarucús grow?" After due reflection he said he had never seen one longer than three metres (118 ins.). His companions nodded their heads. "Yes, they don't grow more than three metres," he repeated, and then added, "*mais ou menos.*" This was his escape clause, meaning "more or less." I was unable to pin him down any closer. On this

point McTurk has written, "I am inclined to say that the average size of a grown arapaima is between six feet six inches and seven feet six inches, but now and again some are caught which I think may be considered freaks, as they are very thick for their length and would therefore weigh above the average of fish that long, or else they are very thin and long for their girth (weigh less) and occasionally one is come across that is very much larger than the average, although it may be said to be properly shaped." In another communication he states that the largest arapaima he has speared was 9 ft. long. He does not attempt to estimate its weight. He agrees with an analysis I sent him, in which I examined the weight-length ratios of arapaimas and alligator gars (*Lepisosteus spatula*), and showed that the gars weigh much less inch for inch. Tarpons are also lighter, incidentally.

Every fish, of course, becomes heavier as it grows longer, but the poundage increases in a geometrical progression as compared with the length. This progression is more and more exaggerated with each additional inch of length. Thus an alligator gar measuring 92 ins. weighed 178 lbs. Another alligator gar measured 116 ins. and weighed 302 lbs. The second gar was 26 per cent longer than the first, but weighed 70 per cent more. Similarly, a sturgeon measured 138 ins. and weighed 835 lbs. Another sturgeon measured 170 ins. and weighed 2,250 lbs. The second sturgeon was 23 per cent longer, but weighed 170 per cent more than the first.

In order to estimate the theoretic length or weight of a given kind of fish it is therefore necessary to make a graph showing the known weights and lengths of a series of examples of that particular species of fish. I have made such a graph, in fact I have made several graphs, and feel in consequence that I can project the weight for an arapaima of a given length with reasonable precision. According to my graphs it would seem that McTurk's 9-ft. fish must have weighed about 427 lbs.; an Arapaima 3 metres long, such as the Portuguese fisherman described, would weigh 517 lbs.; and the 628-pounder, imagined by Fountain, would have had to measure 128 ins.—of course, assuming that the fish in each of these cases is in first-class condition. It only remains now for the anglers of the world to show how closely they can come in real life to the approximations I have dreamed up with my pencil.

Elsewhere in this book I have already hinted fleetingly at the charms of equatorial jungle rivers. Travelling through Africa one will, no doubt, see more celebrated animals—the fauna is more spectacular. But South America can also provide a passing scene that is enthralling to anyone who has a love for "nature in the raw." In a way these tropics are less cut-and-dried than in Africa. One does not, for instance, have to pay such and such a sum sterling to shoot a tapir; there is no game licence to be bought; and there is no limit to the number of anacondas or jaguars one can carry home. A glance at the latest and most detailed map is enough to show how little known are vast tracts of this South American territory, though they may lie within only a few miles of civilisation. Thus anybody with a little time and money at his disposal, plus a modicum of fortitude, can become a genuine explorer! Fishing for the pirarucú in South America provides, I believe, a form of angling unique in the world. Nowhere else in fresh water is there a fish so large and sporting—a fish, indeed, which compares in size and fighting qualities with the big game fish of the oceans: the tuna, the swordfish, and the marlins. And yet this giant fish has hardly been tested on a rod. In addition, and as a sort of super, double attraction, the angler gets this sport amid weird and glamorous surroundings far different from and surely infinitely more fascinating than the commonplace and dreary expanses of the open sea.

PART III



PLATE 42

“ CARPE ” (*DULES RUPESTRIS*)

MAURITIUS

TROUT FISHING IN ENGLAND

By H. D. TURING

It is a pleasing, though possibly vain, conceit to believe that trout were responsible for the beginnings of fishing for sport in England. No doubt I shall be told that the earliest authorities devote far more space to coarse fishing of various kinds than they do to trout and make it evident that tackle for fishing slow-moving rivers and ponds such as the float, paternoster and leger were much more advanced in the fourteenth and fifteenth centuries than that for fishing an artificial fly which is the only one, perhaps, the adoption of which can be attributed to the desire to catch trout for sport, and not simply as a table delicacy. It may be so, but all these ingenious devices for the capture of coarse fish may equally well have been used originally for the capture of fish for the market. Paternoster and leger, for example, from their names are commonly, and certainly reasonably, attributed to monastic introduction, and fishing for the pot must have been much more regularly practised by the monks than fishing for sport; whereas it is difficult to believe that anyone would deliberately select an artificial fly as a remunerative method of capturing any kind of fish.

I am not suggesting that the desire to catch trout was responsible for the sport of fly fishing, or was invented in this country. The late William Radcliffe in his classic, *Fishing from the Earliest Times*, has given very good reasons for attributing the earliest mention of artificial fly fishing to Martial:

*“Who has not seen the scarus rise
Decoyed and killed by fraudulent flies?”*

and the scarus was a sea fish. But fishing for sport must have come from the leisured classes obviously; from men well read in the classics, who inherited the traditions of the chase, and to whom the very fact that the capture of fish with a fly had no commercial origin would have been a good enough reason for its adoption as part of their sport. Does not Walton himself immediately turn to the artificial fly to illustrate his contention that angling is an art as distinct from a business? “Oh, sir, doubt not but that angling is an art” is his rejoinder to Venator. “Is it not an art to deceive a trout with an artificial fly?”

So there is at least some reason for believing that in England the capture of fish for sport originated with fly fishing for trout, and that other methods of capture, with bait or minnow, were a later accretion developed from methods used for pike and other coarse fish which were already in use for supplying the market.

I have wondered at times when and where the whole thing started. It must have been long before any written records existed. There is a long gap between Martial and our own earliest authority, *The Boke of St Albans*. “Between Aelian” (third century A.D.), says Mr William Radcliffe, “and Dame Juliana’s *Boke* no record, with two

possible exceptions, of fishing with a fly exists," and even if we allow the two possible exceptions (one of which is dated *circa* 1000 A.D.) we are not much farther forward in fixing a date. The famous *Treatyse of Fysshynge with an Angle* included in the second edition of *The Boke of St Albans* was printed in Westminster in 1496, and contained a list of twelve flies for use in fishing, from which it may be deduced that fly fishing by then had become something of an established art since they are not mentioned as a new idea on the part of Dame Juliana Berners (the authorship of the good lady has been called in question but the *Boke* is attributed to her) but as a sort of standard collection probably culled from some earlier MS. So it would seem that we must allow a margin of some five centuries in fixing the date between the tenth and fifteenth century.

As to the place we are little if at all better off. In days when travel was difficult it took a long time for an idea to spread from its home of origin to other parts of the country, but as the art must first have been practised by noble families it is quite likely not to have spread gradually at all. A sportsman would be just as likely to discuss his new pastime on a visit to Court and the recipient to take the idea home with him direct to some quite different part of the country; so there would be no intervening period of gradual spread; the art, fifty years later, would have had the appearance of having sprung to life in half a dozen parts of the country simultaneously.

Perhaps for that reason it is impossible to say whether the idea was first developed north, east or west. One can say with reasonable certainty that it was not in the south. In fact, though today the south of England contains the most famous trout streams in the world—if one may judge by the immense literature they have produced—they were "nothing accounted of" till about the end of the eighteenth century; and for a reason which will be discussed later. Equally the east—unless it was the extreme north-east—may safely be cut out of the picture for it is the one part of the country where trout streams are few and far between. But as for the respective claims of the west and north, there is no choosing between them. They are both countries of moorland and bog (more so in the old days than now), both heavily watered tracts where spates are frequent and dry periods few, where streams are swift, though not necessarily turbulent; where in early days there was little cultivation and where in consequence trout could thrive easily but other species of fish find only a precarious existence.

These moorland streams are the real home of the trout, nature's own nurseries as it were, though civilized man has his particular ideas as to what a trout stream should be like. He has, one might say, improved on nature's original plan. He has tilled the waters as well as the land, fumblingly and often mistakenly it is true, and only keeps his hard won inheritance by the sweat of his face even now, for a few seasons' neglect and his trout stream starts to revert to the status of a general fishery with coarse fish dominant; but that after all happens with farm lands also, and it is something of an achievement to have produced so much fine fishing by man's own initiative. But more of such streams anon. These moorland streams were the original sportsman's waters and probably remain so today for the great majority of rods, for they have altered their character but little.

In the high moor little runnels appear in the black peaty earth, deep cut channels as a rule joining at last to form a substantial stream of a full yard in width, falling in a series of cascades and small pools in all respects a true replica in miniature of the trout stream which men fish at the bottom of the valley below. But even here, in extreme youth, they seem to hold their population of tiny trout which can be seen darting after

flies which hatch or fall on the surface from the ferns and grass bents which almost hide them from view. The true trout stream which they eventually form, a stream three to eight yards in width perhaps, differs little from these kittenish skipping beckes except in the size of its trout. The bottom is rocky or spread with heavy gravel, the current swift except for an occasional flat where the stream seems to loiter discontentedly, but with a deep pool every 100 yds. where the water, normally clear and easily wadeable, suddenly sinks into brown misty depths, the bottom quite invisible, where dwell the grandfathers of the lively little trout of the stickles. None the less they drop back from their security to feed in the sloping gravel tail race as the water leaves the pool to mutter merrily over the shallows once more, and the angler who knows his stream knows also that the best trout of his basket will come from such quarters.

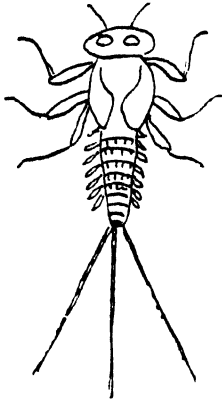
There is next to no weed, but every stone on the bottom carries its crop of algæ and if a stone is lifted the wealth of insect life, larvæ and nymphs of flies which will later make their precarious ascent to the surface, becomes immediately apparent. These streams have not changed their character since "the memory of man runneth not to the contrary"—and many generations of man at that.

What is more surprising, perhaps, is that methods of fishing them have altered but little, also. The dales of Yorkshire and the combes of Exmoor, typical of the north and west of England respectively, have much in common and the streams which meander through their solitudes in summer have much in common, too. The Yorkshire trout are the bigger and probably average a good $\frac{1}{2}$ lb. apiece—fish of 11 ins. long—with a pounder or two as a customary triumph to lay at the top of the creel, while in Devon and Somerset an average of a true $\frac{1}{4}$ lb. is warrant enough for satisfaction at the end of the day; but that is because the Yorkshire beckes run over outcrops of limestone while the Devonshire streams seep from peat bogs on the high moors, and lime is as great a fertilizer of water as it is of land.

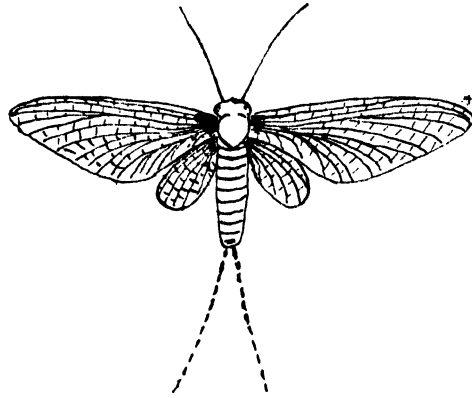
H. C. Cutcliffe, who wrote one of the best books on fishing this type of stream which the nineteenth century produced—*The Art of Trout Fishing on Rapid Streams* (1863)—used a rod 10 ft. long for fishing the artificial fly. It was made of split cane except for the butt. He lived before the days of waterproofed lines. His was of silk and hair mixed but his cast or leader (collar he calls it) was of gut and his flies probably could not be bettered today for this kind of water. Hare's fur dyed or undyed seems to be the favourite ingredient of his fly bodies. He used three flies on his cast, the droppers being apparently rough imitations of natural flies such as March Brown and his tail fly (or stretcher as he calls it) a "black-red palmer" dressed with a peacock-herl body ribbed with gold twist and a furnace hackle. He regarded it evidently as a purely fancy fly but it is likely enough that fish took it for a nymph rising to the surface to hatch, since it is now known that nymphs loosen their shuck under water by absorbing air which must give the insect a glittering appearance no doubt represented well enough by the gold twist. He fished upstream. Incidentally it is interesting to note that he laments that no one tries to imitate the nymphs. "I find so much spoken about the natural fly and its imitations, but little about the insect before it arrives at maturity. How seldom does one imitate the larva or pupa of the several insects." And this was in 1863.

But we can go back another hundred years and still find the same system of fishing rapid streams, in the *North Country Angler* published in 1786. He has been called the "North Country Poacher," with perhaps some justification from the modern point of

view since he carried "the point of a tuck or small sword" screwed into the butt of his rod "to keep off those rascally poachers called gamekeepers" which looks as if his methods were open to question, though "sport" in those days was a wide term including cock fighting and tying a live bait to a duck for the entertainment of watching the struggle between a duck and a pike which had taken the bait. But he must have been an expert fly fisherman. He also used three flies, a dubbed (fur bodied) fly for the tail, and hackle flies for the droppers. He fished across and downstream, keeping his dropper flies on or above the surface: "When I fish with these flies, I let one of them, the hackle or drop-fly, only touch the top of the water; the uppermost only sometimes." It is obvious that his system, in modern language, was to use a sunk fly as a nymph rising to hatch, his first dropper as a dun on the surface and his second dropper as a spinner dipping to lay its eggs. To do this he had to fish more or less downstream so



Type of Flat Nymph
(March Brown).



March Brown with wings spread
as in flight.

that the current kept his line extended, but otherwise his method seems to have differed little if at all from modern practice.

It is worth noting in passing that this man used two *dry flies* on his cast, a point of some interest when we come to consider the origin and object of modern dry-fly fishing.

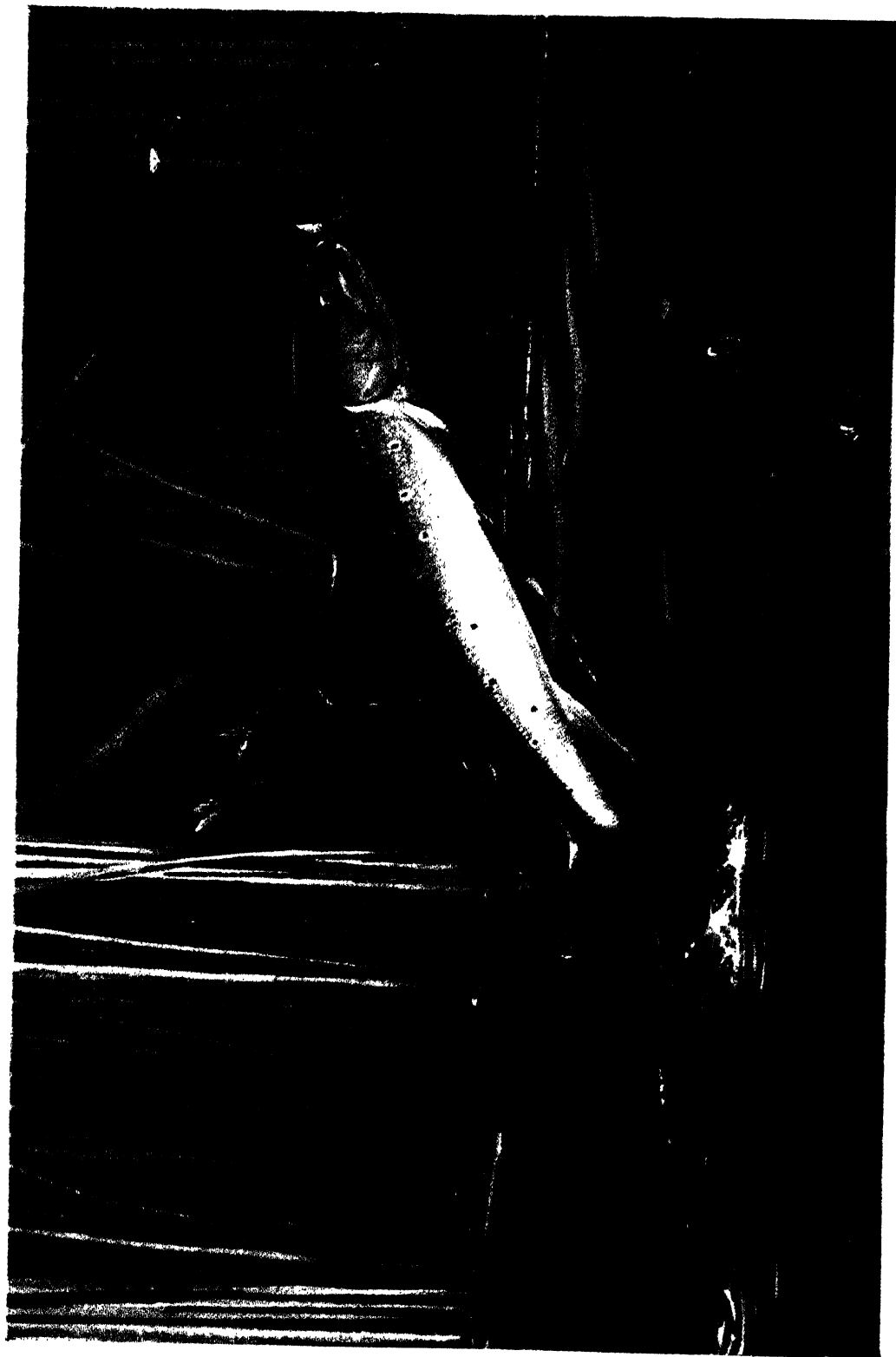
It is curious that with all we have found out about the natural history and habits of both flies and trout our practice today differs so very little from that of the eighteenth century. Practical observation seems to have given the cue to the best method though the reason for it was then quite unknown. Most of the flies upon the imitation of which (more or less) anglers depend for their sport on this type of stream are of the March Brown or Yellow Upright type (*Rithrogena* and *Ecdyurus* genera). They lay their eggs by dipping at the surface, the eggs sinking among the stones on the bottom. These develop into "flat" nymphs, a sturdy-looking insect with a broad dome-shaped head, gills alongside its abdomen and three hairless setæ (tails). They hide under the stones on the bottom and browse on the algæ with which every stone is covered. Various species and genera hatch out periodically all through the season, some in big flushes, some spasmodically. When the time for hatching approaches they make one or more visits to the surface to get air which passes through the intestines and into the space between the body of the insect and its shuck. They then return to the bottom or an upstanding stone to which they cling for a matter of twenty minutes undergoing their



PLATE 43

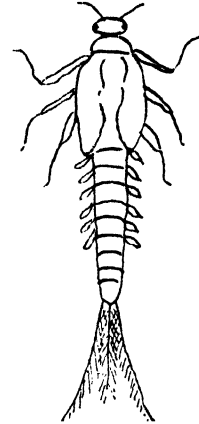
CHUB (*SQUALIUS CEPHALUS*)
and BARBEL (*BARBUS BARBUS*)

GREAT BRITAIN



metamorphosis; then they swim to the surface, where they burst the shuck and fly away to the bank. There are also other members of the *Ephemeroptera*, mostly of the *Baetis* genus, Olives and Pale Wateries, which have swimming nymphs—the tails being provided with long hairs making the three together quite an effective oar. In slower streams there are weed-haunting insects, but as there is little weed in these rapid streams their habits are much the same as the flat nymphs; they also hide under stones and cannot be at all readily available to the trout until they come to hatch.

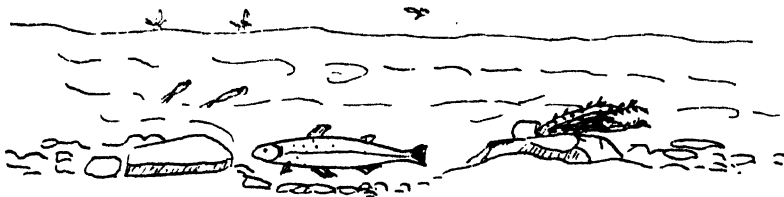
There is also a considerable amount of caddis (Sedges), which form cases from the small stones and débris on the bottom and depend for their safety on camouflage. Probably their method of hatching (apart from visits to the surface) does not differ very materially from the *Ephemeroptera* though at present very little is known about it. Some of them crawl out of the water before hatching.



Type of swimming nymph. Note the oar-like tail.

It results that in these rapid streams fish have to be “quick in the uptake” in more senses than one, in order to get a living. Except in times of spate, when a lot of land food, worms, grubs and the like, gets into the stream, trout are largely dependent on the hatch of fly. They take up position on the bottom, generally in some slight hollow which will give a good view, not deep enough to be perceptible from above, but enough to give them ease from the current, and rise quickly to any insect which comes within range. There is no time to pick and choose, nor can a fish afford to chase flies outside of its limited range as the effort of swimming against the current uses up too much energy to be remunerative.

The art of fishing follows the habits of the trout. Either two or three flies are customarily used. These are usually “impressionist,” rather than exact studies of the natural insect. A leash of flies usually considered suitable for a west-country stream would be: Gold-ribbed Hare’s Ear (representing a nymph on the way to hatch) as a



Trout in feeding position in a rapid stream.

tail fly, and a March Brown and Blue Upright (the latter a representation of a small olive) as droppers—but of course such a selection is subject to infinite variety. On a north-country stream a rather similar leash might consist of Light snipe, Waterhen bloa and Dark Partridge and Yellow. North-country flies are usually named after the feathers of which they are built, but the idea that only north- or west-country flies will catch fish in their respective areas is an hallucination. It is notable that there is very little difference between our methods today and those of a hundred to two hundred years ago. More attention is paid to a closer imitation of the natural insect, perhaps, but modern anglers realise that to try to imitate the natural insect’s behaviour is much more remunerative than to imitate its exact appearance.

Tackle has improved. Split cane for rods has almost ousted the older greenheart and hickory. Waterproofed lines are universal. Gut is more finely drawn. Eyed hooks have largely superseded those whipped to gut, though some anglers still prefer the latter, especially for the tail fly which has to sink under the water. Rods are shorter; 9 ft. is probably the average, though there are adherents to rods of even 11 ft. which can "flick" a fly more easily into encumbered waters. But normally the modern angler wades upstream throwing his flies into the likely spots (a knowledge of which constitutes the real crux of the wet-fly fisher's problem) and so regulating his cast that the current brings them within the effective feeding range of the trout.

Modifications of method are often enough employed especially in low water. A single fly is then sometimes employed with more success than a cast of two or three, and this is commonly a dry fly: a fly dressed with a bushy outstanding hackle which keeps the fly on the surface; and the line greased. Quite often one hears this referred to as "dry-fly fishing," but in reality it has little in common with that method. There has always been a school of angling which advocated the use of a single fly, as can be seen from the *North Country Angler* already mentioned: "I own," he says, "I do not like to fish with a single fly, though some nice anglers pretend it is the best way." So evidently even in the eighteenth century the purist of the day liked to use a single fly on his cast, and doubtless it was fished on the surface, though flies specially dressed to float were an outcome of the dry-fly system introduced in the nineteenth century. There are occasions, however, when the water is low on which fish in a run or quiet pool are more attracted to a fly floating on the surface than to a fly which is worked or allowed to sink.

In wider streams there are many expert anglers who still adhere to the older down-and-across method of casting and whose baskets certainly do not seem to suffer by it. In fact, the most successful angler is generally the all-round craftsman who can and does adapt his method to the particular stream he is fishing.

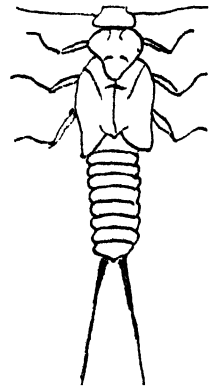
These wide waters, too, are often best fished by light spinning, especially if they are too deep to wade. Spinning is the art of imitating a live fish by imparting a revolving movement to a dead one, or to an artificial bait shaped more or less like a small fish. This is done by mounting a small dead fish on a series of treble hooks, known as a "flight." One of each of the three hooks forming the treble, called by anglers a "triangle," is inserted in the flank of the fish, the other two standing out for hooking the trout; a small single lip hook inserted in the lips of the fish completes the "flight." Giving a slight bend to the bait in mounting makes it revolve, or spin, when drawn through the water, and this motion no doubt simulates to some extent the wriggle of a fish swimming rapidly. For small baits only one triangle and one lip hook are necessary.

The most common, and in the hands of an expert the most effective, tackle for spinning consists of a light split-cane rod about 8 ft. 6 ins. long, a free running reel, and a very light undressed line. A special shape of lead is employed to prevent the revolving action of the bait twisting the line and to give sufficient weight to enable the bait to be cast some distance, 30 yds. or so. The method used is to bring the rod round with a sweeping motion parallel with the ground. The reel, which is held by a forefinger against the rim, is released at the right moment and the impetus to the bait caused by the swing carries out the line as it travels forward over the water. The bait is then wound in again by the reel, and spins as it comes through the water. There are flights with fans attached to cause the spin—mounting with the correct curve being rather difficult—and many artificial baits which also spin by fans or the shape of the bait.

Sometimes very short rods are used of only 5 or 6 ft. and the cast made overhead instead of by a side swing. This is the traditional method in use in America where the reel is mounted on the upper side of the rod and is invariably of the "multiplying" type in which gears are inserted between the handle and the drum. It is one of the curiosities of the sport that though multiplying reels were invented in England—one finds quite a controversy about them in books of the early part of the nineteenth century—they have never become popular over here, whereas they are the standard for almost all methods of fishing in America. The difference in the length of rod is easily understood. In England nine times out of ten spinning is done from the bank, and a very short rod makes it difficult to lift the bait from the water, since the banks, and the water near them, are often encumbered; and for the same reason a fish is difficult to gaff or net. But in America, on account of the much larger rivers, spinning is mainly done from a boat where the advantages and convenience of the short rod and overhead cast are apparent. The unpopularity of a multiplying reel is more difficult to explain, but experience has shown the desirability of fine tackle being used and gears intervening between the handle and the drum take away a good deal of the delicacy of touch which is desirable when playing a fish on fine tackle, an objection which has little weight in America where such fine gear is unnecessary.

Low water, especially in the north, has been responsible for a method of trout fishing which is peculiarly English: "clear-water worm fishing." This is extremely difficult and partakes to some extent of the nature of fly fishing. Sometimes special rods of about 11 ft. in length are used, the centre portion being stiff with a rather whippy top joint, but more commonly a split cane fly rod of some 10 to 10½ ft. in length is selected for this form of sport. Otherwise the tackle is identical with the fly fisher's except that, instead of an artificial fly, a small red worm is impaled on a bare hook which is tied to the end of the gut cast. Wading is practically a *sine qua non* for this style of fishing. The cast is, of course, very different from that used in fly fishing and is difficult both to learn and to practise. The bait is brought forward with a sort of overhead "lobbing" motion, ending in a flick of the rod point, a good deal of line (one or two loops are held in the left hand) being shot at the end of the cast. The cast is made upstream and the rod raised as the worm is carried down by the current. The art is so to control the worm that it trickles along the bottom in the way a worm which has been washed into the stream would naturally behave. Striking when a trout has taken the bait is a delicate matter. Experts at the game seem to acquire a sixth sense which tells them whether the stoppage of the bait, which can be felt through the line, is caused by a fish or by the bait touching a stone, which it does constantly in these rough rivers.

Fishing with the natural insect—except in the case of dapping the mayfly on lakes—has practically dropped out of the angler's curriculum nowadays; though baskets of small trout from rills too small to be fished with an artificial fly are still made with it on occasion. In Cutcliffe's day it was a recognised part of the sport and was much in vogue when no hatch of fly was on the water. But it has survived in one particular case: when the "creeper season" is on towards the end of May in some west-coast streams. Creeper is the popular name for the nymph of the Great Stone fly (*Perla maxima*) and is a most



Creeper. Nymph of the Great Stone Fly (*Perla maxima*).

substantial mouthful some inch or more long. At the time of its emergence into the winged insect anglers collect quantities from under the stones, impale one on a hook and use it rather after the manner of an artificial fly; but like the worm it has to be cast in a style which is halfway between a swing and a fly-fisher's cast. Enormous baskets are occasionally made with this natural insect and in some streams it has a definite season, comparable to the mayfly season of slower rivers.

This again is one of the minor mysteries surrounding the feeding habits of trout for it is very doubtful whether creepers often come into the maw of a fish except when offered by an angler. Its life is spent mainly under stones, and it is suspected of serious depredation on the lesser and more useful insect life of these rough waters. Shortly before hatching into the winged insect it crawls out of the water, up stones or tree trunks often to a considerable height, and the perfect insect drops its eggs on to the water from above the surface, so the chances a trout has of feeding on this presumably succulent morsel would seem to be few and far between. But there is no doubt of its attraction when used as bait. For some unexplained reason no one yet has been able to dress an artificial representation which is anything like as successful as the natural insect.

Recurrent periods of low and clear water in rapid Yorkshire streams have been responsible for another form of fishing—a modification of customary methods of spinning—which has been much in vogue during the last two decades: fishing with the fixed spool reel. The reel was the invention of the late Holden Illingworth, a member of a family long connected with the Bradford woollen trade (the idea of a spool would thus be familiar to him), for the express purpose of casting a very light minnow upstream and fishing it down.

Low and clear water in these Yorkshire dales provides a problem which the angler finds difficult to solve. There is practically no hatch of fly, and land insects, except in high winds, do not get into the water nor is any substantial food coming in from the small rills and feeders which often enough are almost dry. Clear-water worm is occasionally remunerative in the hands of an expert. But experience has shown that minnows can be used to advantage. Possibly trout are forced to hunt their food since the current brings little down to a stationary fish "glued to the bottom" which is the apparent condition of such fish as can be seen at all. The difficulty is to present the minnow while the angler himself remains invisible. Attempts to spin a bait in the ordinary way by casting across and downstream result in a *sauve qui peut* among the trout, who can see the angler quite clearly, and effectually defeats his efforts. The only way is to cast upstream and spin the bait down.

Ordinary baits weighing $\frac{1}{2}$ oz. or so cannot be used since they sink too quickly in the few inches of water which is all the rivers hold in many reaches. Very light baits of 2 or 3 drams' weight have not sufficient momentum to make the drum of the reel revolve. Holden Illingworth evolved a reel in which the revolving drum is replaced by a fixed spindle on which the line is coiled and which flies off in coils when the cast is made. The momentum required is very slight since the bait has only to carry out a thin thread-like line, so very light baits can be used. In fishing the line is wound on to the spool again by a rotating arm, geared to give a rapid recovery. This has proved a most satisfactory solution of the problem of how to catch trout in low and clear water.

The method has fallen into some disrepute of late on account of the tendency of anglers to use it in unsuitable places. Casting with such a reel is extremely easy as compared with the revolving reel, which requires a fairly long apprenticeship to time



A-FRASER-BRUNNER

School of MACKEREL (*SCOMBER SCOMBRUS*)
School driven to surface by large fish where Gannets dive for them

the cast accurately. The advantage is offset in practice by many practical difficulties (too many to mention here, but they occupy two or three chapters in nearly all the books devoted to the subject) but anglers who have only learned spinning with a fixed-spool reel are naturally disinclined to learn the more difficult though much more useful art of fishing with a revolving reel. It has resulted that this tackle, quite inadequate to play a big fish except by waiting till the fish has tired itself out, has been used in big-fish waters and many fish in consequence break away. A more serious objection is that it is often used in fly waters, to the not unnatural resentment of anglers who wish to use the more artistic method and whose water is thereby spoiled for fly fishing for some time after being disturbed by the spinner. In many fly-fishing waters it has been forbidden, but in its legitimate sphere it has, for all practical purposes, increased appreciably the number of days on which rapid streams can be fished with success.

Dry-Fly Waters

There is, I suppose, nothing which has caused such a revolution in the general outlook on fly fishing during the last hundred years as the system of fishing evolved during the nineteenth century which has come to be known as "dry-fly fishing." It has produced an immense literature of its own and an apparently interminable controversy over what is and is not "cricket," what the dry-fly conventions are, or are not, or what they ought to be, and has undoubtedly raised the status of trout fishing in the eyes of anglers the world over; so much so that one sometimes wonders whether the idea of catching fish has become a secondary consideration. But there seems to be so much misunderstanding about what the term really means and why the system is found so attractive that I must crave indulgence if I delve a little into the origin of all this mystery and debate.

First let me emphasise the fact that "dry-fly fishing" is a name—it is not a definition. When the name was first given no one seems to know. Probably it was a nickname, due to anglers being observed to wave their flies in the air to dry them—false casts as we now term them. A careful study of the sporting periodicals of the mid-nineteenth century might suggest when the term first began to appear in print, but it was certainly many years after the system first became established. The first generally accepted description of the new art occurs in the first edition of Pulman's *Vade Mecum of Fly Fishing for Trout* which appeared in 1841 and he gives a more detailed description, which includes the method of making false casts to dry the fly, in a later edition—1851; but from his script it is obvious that the new idea had taken root some years before his book appeared since he refers to it as an established practice which had been the subject of controversy.

In earlier literature—1800 to 1840—one gets occasional glimpses of the idea of fishing on the surface but one thing is obvious: the system had nothing directly to do with the fly being "dry." This could not have been a new idea at the beginning of the nineteenth century for already, as recorded earlier, the *North Country Angler*, and he does not write as if he invented the idea, had advocated the use of *two flies fished dry* on the cast. That these flies were what we now call "wet flies" is of no moment for all flies were so dressed for thirty years more or less after dry-fly fishing was introduced. The difference between the *North Country Angler's* dry flies and those of the new school fifty years later consisted in the method of their presentation to the trout. But one can perhaps make a shrewd guess at its inception when it is realised that quite suddenly a

different type of trout stream came to the fore as a fly-fishing water. Up to the end of the eighteenth century trout fishing had been done principally in rapid streams, great or small; one seldom finds any mention of the chalk streams of the south country. Members of the Houghton Club on the Test—today probably the most famous of the world's trout streams—used to fish for pike in the autumn. The trout fishing—and one hears little about it—ended with the mayfly season early in June. It was only in the first half of the nineteenth century that the great trout-fishing potentialities of these chalk waters began to be realised; and its development has coincided with the development of dry-fly fishing, though it was probably on the Axe (since Pulman published his book at Axminster) further to the west in Dorset (a stream of rather similar character) that the beginnings of dry-fly fishing were first seen.

How this change in method came about may be easily understood if one studies the character of these streams which rise in the chalk downs. Chalk is a wonderful fertilizer both of land and water. These streams run through fertile farm lands, winding gently down valleys between lush grass meadows where dairying and stock raising are the principal forms of agriculture. Though the current in parts is fairly swift, it seldom produces broken water. Occasional rippling shallows are the nearest approach to the stickle of the rapid stream. The water is seldom wadeable except near the source or where bends in the course, and they are many, have cut a wide shallow in the flat floor of the valley. Most of them are lined with water meadows, a system of grassland irrigation introduced in the seventeenth and eighteenth centuries which gives three crops of grass in the year. For the purpose weirs were thrown across the stream and the adjacent land is replete with small backwaters and runnels which today often hold a stock of goodly trout. In the lower reaches the rivers themselves have often divided

into two or three arms meandering along opposite sides of the flat valley as it widens towards the sea. Everywhere there is a feeling of peaceful prosperity which to many men has a greater charm than the solitudes of the moors and hills, and has no doubt added its quota to the new art of fishing the fly with which it has become inseparably connected.

The streams themselves are fertile. They contain immense quantities of fly larvæ, shrimps, snails, caddis and the thousand and one items which



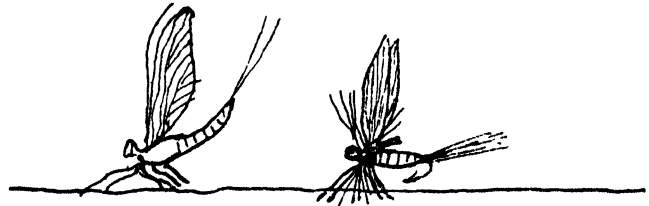
Devonshire
(Blue Upright).



Yorkshire
(Poltack and Yellow).

comprise the fauna of running water. Everywhere there is weed, and this is the real difference between the stony rivers of the hill country and these clear-flowing waters of the southern valleys, and also the real *raison d'être* of dry-fly fishing. This weed is worth study. It is amazingly prolific and has always excited the comment of anglers visiting the country from overseas. If a chalk stream is visited in mid-winter it will be noticed that the impression of a bed overgrown like a farm meadow is in reality incorrect. Rooted weed does not in fact occupy more than perhaps one fifth of the gravel which forms the bottom. It is its growth which is so surprising. As the summer goes on these weed beds, unless they are cut, form streamers of 10 to 20 yds. in length; long trailing weed, swaying in the current some foot or so under the water and forming almost a complete veil to the gravel, which can only be seen in patches here and there. The whole of this weed is covered with a jelly-like growth of algæ and offers a grazing ground for fly larvæ which must be three times as great as that offered by the stones of rapid streams.

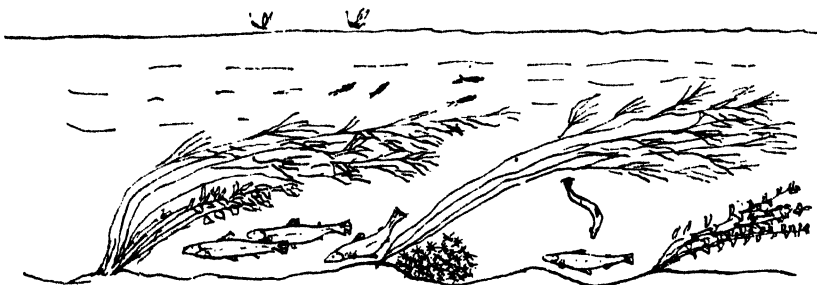
As a result fly life, and consequently the feeding habits of trout, is very different from the more usual type of trout water. Much of the fly life of these streams belongs like other waters to the order *Ephemeroptera*, but the more prolific hatches, instead of belonging to the March Brown group which has flat-bodied nymphs hiding under stones, belong to the *Bætis* group: Olives, Iron Blues, Pale Wateries, or the Great and Lesser Spurrings (*Centroptilum*) and all these have swimming larvæ which harbour largely in the weed. To these may be added the Blue-winged Olives (*Ephemerella*) which have a crawling larva hiding in the silt banks which form at the base of every weed patch, and in many of them the Grannom, a small sedge, whose life from the cradle to the grave is believed to be spent wholly on the weed.



Natural Olive and Artificial Imitation.

There are, of course, many other types of fly, sedges and so forth which form caddis cases, but I have mentioned these in particular, first because they form the bulk of the hatches on which the angler depends for his sport; and second, because they all have one habit in common in chalk streams: they seldom or never hatch directly from the bottom. They first climb on to the weed, from which they make the preliminary ascents to the surface to get air for loosening their shucks, and when they make their final ascent for their change into the winged state they make it from the weed and then are only available to the trout in the small section of water between the weed and the surface or on the surface itself. This, then, is the stage when they are most readily available to a trout—the stage of the hatch.

This peculiarity has made a profound difference to the feeding habits of the trout and to the angler's method of catching them. When the hatch is not going on the fish



Trout under weed where they cannot see anglers' flies; when feeding they move above the weed.

are on the bottom, and except in an odd clear patch here and there it is quite useless for a fly fisher to fish for them. There is a layer of long strands of weed which covers the trout and he may cast till he is "blue in the face"—and an infuriated angler's complexion may not be so far from this popular conceit—without the fish even seeing his flies at all, cast he ever so cunningly. But directly the hatch comes on, trout, if they are take to advantage of it, must leave their secluded quarters on the bottom and come above the weed to feed. I feel confident in the belief that it was this peculiarity which

caused the introduction of dry-fly fishing: the discovery that the only effective method was to "fish the hatch" instead of "fishing the water" which in rapid streams means casting into places where fish are likely to be lying. There are no "likely places" in a chalk stream—broadly speaking at all events. Either the fish can be seen feeding, or poised ready to feed, or they are not accessible to the fly fisher at all. The oft quoted saying that dry-fly fishing consists in fishing the hatch and wet-fly fishing in fishing the water is as near to a true definition as we are likely to come.

All the improvements in tackle—powerful rods, waterproofed lines, upwinged flies—which have been evolved to meet the dry-fly man's needs are simply attempts to enable him more easily to imitate the behaviour of the natural insect during its ascent to the surface and its temporary residence thereon—and also, of course, its return to the water when its brief life span in the air is finished and it falls as a spent fly on to the surface.

The modern dry-fly equipment is not so very different from that used on rapid streams, indeed many men who fish various types of water during the season make no change, apart from the cast of flies, though a man whose equipment is designed expressly for wet-fly fishing—parallel line and cast—would have to alter these items for success on a chalk stream. Modern craftsmanship has produced a rod which is both short, light and powerful. Most of them today are 9 ft. in length instead of the 10 ft. 6 ins. of the last generation. Lines are waterproofed and tapered for 2 or 3 yds. at the end. Casts are also tapered, the object being to have a line of considerable weight which can be propelled against a wind (the chalk-stream fisher's constant bugbear) and yet, owing to its taper, enable the fly to alight gently on the water. Waters are seldom wadeable so casting has to be done from the bank, at the edge of which a skilled water keeper will leave a thin knee-high strip of herbage to give the angler such cover as is possible on these open streams.

In fishing, the cast is made rather loosely on the water, for the fly, once it has been cast, is allowed to float down unimpeded over the head of the rising trout, so as to imitate the behaviour of the natural fly as nearly as possible. For the same reason flies to represent the dun stage of the insect after it has hatched and while it is still standing on the surface, are dressed with the hackle points standing out at right angles to the hook, so that the fly rests on its hackle with the body of the fly above the surface. The natural fly stands on its feet in this way with its body above the surface, so the artificial fly is built to float in the same way. The line is greased to make it float. Some anglers even grease part of the gut cast, which is usually 3 yds. or more long; but the majority of men consider this a bad practice on the ground that gut thus treated forms a film of grease on the surface which is believed to be more visible to the trout.

Flies are dried after each cast by making half a dozen or more false casts in the air, which no doubt accounts for the popular name, but it is a mistake to suppose that in dry-fly fishing the fly is necessarily dry. When a fish is taking the dun the artificial is fished dry since, as explained above, the natural fly is standing on the surface, but spent flies are often taken by trout in preference to the newly-hatched insect and the fly then (dressed with outspread wings) is fished *in* the surface film, or even allowed to sink a little below it, as does the natural fly. Trout also have a habit of selecting the fly which has come to the surface but has not yet struggled from its shuck—the process often takes a minute or so—and the artificial (a hackle fly with a fur body as a rule) is also fished in the film, though some anglers consider they get better results by drying this

type also, so that it floats with its body half out of the water. Flies are winged or hackled according to the taste and fancy of the angler, though the present-day tendency is towards hackled rather than winged flies.

The fascination of the art of dry-fly fishing properly so called (I do not mean merely the use of a dry fly which on occasion can be quite effective on almost any type of water, but has little to do with real dry-fly fishing) lies in the personal competition between an angler and his quarry. The fisherman can see his fish feeding. He has to employ crafty tactics in order to delude it into accepting the false for the true. These fish are big. A pound and a half is no very uncommon average for chalk-stream trout. This means a fish of some 15 ins. to 16 ins. long and quite a number of 2 lb. to 2½ lb. fish will come to the creel in the course of a season. They are leisurely feeders. There is no snatch and grab raid, such as a moorland trout makes on insects passing swiftly over its head. The chalk-stream trout lies poised a few inches under the surface and lifts its head to suck in a selected morsel, breaking the surface with a tiny dimple no bigger than would be made by throwing a pea into the water. In a mixed hatch of flies it often selects only one. It is a frequent experience in spring when Olives and Iron Blues are hatching together to find a fish picking out the Iron Blues and ignoring the bigger and presumably more succulent Olive. It may be taking spent fly, or duns freed from their shucks, or the hatching insect; so there is plenty of scope for observation and ingenuity on the part of the angler.

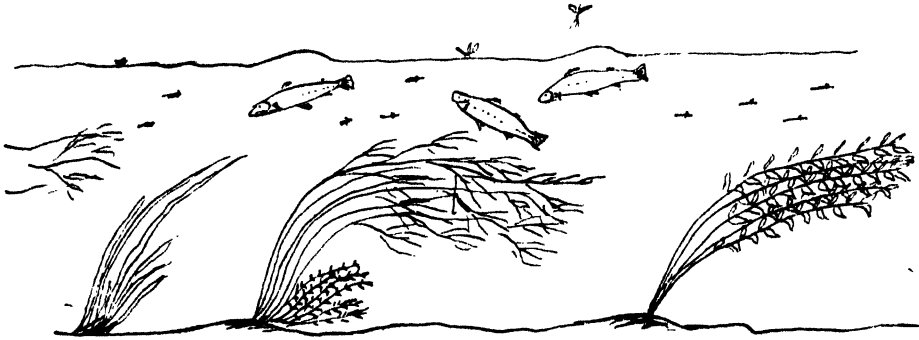
It may also be doing none of these things but taking the nymph on its way to the surface to hatch—which brings us by a natural sequence to the vexed question of nymph fishing. I have called it a vexed question and so it is, though there is really no reason why there should be any dispute about it. But for years past a stirring and often envenomed controversy has made a periodical appearance in the angling press as to whether it should be allowed in dry-fly waters. A nymph rising to the surface is under the water and many anglers, brought up in the dry-fly convention without properly understanding it, claim that a fly should not be fished wet in waters reserved for dry-fly fishing. It all comes from the popular but quite erroneous belief that dry-fly fishing necessitates the use of a dry fly. That is not so. As I have indicated above both spent flies, and flies representing a hatching dun (the gold-ribbed hare's ear is the most common representation) are, and always have been, fished "wet," technically speaking. They are not usually oiled or dried by false casts. Dry-fly fishing consists in fishing the hatch and as the rising nymph is unquestionably part of the hatch its representation comes within the dry-fly convention—indeed it is doubtful whether it can be fished properly in any other type of stream, though, of course, artificial nymphs can be used on rapid streams just as a dry-fly can be used.

What has probably embittered the controversy is the unfortunate fact that trout nowadays seem to be becoming more and more addicted to the nymph. The reason for this has only recently been discovered. Careful observation has shown that many nymphs seem to have a difficulty in making the final ascent to the surface. This may be due to the encumbrance of a half-loosened shuck or to exhaustion in preparing for their metamorphosis, or some other unknown cause; but it appears that they cannot always attain their goal "at the first shot." A rest period, with some flies, occurs on the way, so that they are swept down by the current for long distances, as much as 30 yds., a few inches under the surface. The trout is not slow to take advantage of this happy state of affairs. It can only see a small patch of the surface immediately over its head,

but it can see a long way under water. Hence the chance of a feed without having to watch the surface is seldom missed.

For the angler this method of feeding means a period of unmitigated exasperation. The fish do not "stay put" as they do when feeding from the surface. A fish takes a nymph say near the bank, then it moves quickly a couple of yards out into the stream, turns head upstream and intercepts another; then it runs a few yards upstream for another mouthful; drops back three or four yards; returns to its old place; goes to left or right as occasion offers and is never in the same place for a couple of minutes together. If the nymph happens to be near the surface the trout in taking it makes a "bulge" as its back comes near the surface, a rise of quite a different character from the small dimple made by sucking in a dun at the surface. Some controversy has arisen even over the meaning of this word "bulge." Yet it is quite simple. It is called a bulge because it is a bulge, which the dictionary describes as a "swelling." That is exactly what it is; a hump, swelling or bulge of the surface made by the back of the fish as it takes the nymph.

But the angler cannot see these excursions, unless the fish are so close to the surface that their movements are revealed by V-shaped waves. He only sees the bulges, here, there and everywhere as if there were a dozen or more fish all furiously on the feed.



Trout bulging at the nymph.

By the time he has placed his fly where the fish rose, the fish is somewhere else. Unless he is used to the game he will spend endless time fumblingly trying fly after fly in the hope that he can find the right one, while the trout feeds steadily somewhere else, and the creel remains empty. The more knowledgeable man puts up a representation of the probable nymph, but even then he is not so much better off as he can only cast it where he thinks the fish is likely to be next, and success is seldom attained but by a long apprenticeship. Bulging fish have been responsible for more variegated profanity than any other feature of a trout water.

One of the troubles with chalk streams is that, for some reason not yet fully understood they are not as a rule good spawning streams. They have few small tributaries and the best reaches, where the big fish are to be found, fellows of 3 lbs. and more, are often deep. As a result it is generally necessary to maintain the stock by planting hatchery fish. It used to be thought that all natural spawning was inefficient but a few years ago, in an investigation made by the New Zealand marine department, it was discovered that actually more than 95 per cent of the eggs hatch successfully, so the losses evidently occur in the early fry stages. In rough and rapid streams where there are few inhabitants other than trout the stock can be maintained by natural breeding,

but in a chalk stream the conditions which produce natural food also produce an almost unlimited quantity of enemies of young fry and the stock suffers in consequence. This has led to an unusual feature in many owners, particularly clubs, having their own hatchery and breeding from their own fish, a very useful occurrence as it prevents disease being introduced.

But it has also led to difficulties over feeding the fry. For many years there was a craze for stocking waters with unfed fry, so that they were never fed on artificial food—which makes it difficult for a trout to fend for itself when it is put in the stream—but recently it has been realised that just as great losses occur among the fry put in from a hatchery as among those hatched naturally and there is a growing tendency for these small hatcheries to breed natural food in the form of daphnia and other small live food which has not the objection of artificial food—a movement which should go far towards a solution of the stocking problem. The number of professional fish breeders is also on the increase, though stocking in this country has never attained the dimensions of the craft overseas. No doubt this is partly because nearly all fisheries are privately owned so the number of rods can be regulated to suit the fertility of the water. The demand from the professional fish farms is more for stocking lakes than rivers since the spawning facilities for lakes are usually meagre.

In England lake fishing for trout is of quite minor repute compared to fishing in streams. No doubt that is partly due to the comparatively small number of natural lakes which hold any special stock of trout. There are a fair number of such lakes in Wales but many of them are rather inaccessible. The fish are generally small and inclined to be dour. The best lake fishing is in the type of domestic-service reservoirs which have been formed by damming a small stream in a wide flat valley, so that the lake is shallow and in consequence the water is prolific in fly life.

The most famous of these, known as Blagdon from the village on its shore though its real name is Yeo reservoir, is of such a character. It lies in a fold of the Mendip hills and is fed by the small Yeo and by springs from the limestone hills which surround it. The trout are enormous. For many years an *average* of 3 lbs. was maintained there and even now, when there is a larger stock of fish in the lake, four-pounders are not uncommon. But the lake is quite exceptional. There are very few still waters in the country which can maintain an average of $\frac{3}{4}$ lb., and a $\frac{1}{2}$ lb. average, even in waters with a good reputation for fishing, is much more common.

In Scotland loch fishing is held in much greater esteem than it is farther south, though the size of the trout is not appreciably greater. The reason may be sought partly in the far greater number of lochs available, but more, perhaps, in the comparatively poor stream fishing for trout which is available directly one has passed out of the area of the Border streams. There are one or two notable rivers, but for the most part fresh water trout are the small burn trout and are not accounted of much value in a country where salmon and sea trout abound.

But it is more probable that the reason so many anglers in England take little interest in lake fishing is because it offers so few "problems" for solution—and problems which require special tactics for their undoing have become a very important feature in twentieth-century fishing.

Writers have often lamented that the same attention has never been paid to lake tactics as has been paid, let us say, to the capture of chalk-stream trout, but experience has shown that such finesse does not pay in a lake. On a chalk stream the man who

can devise tactics to outwit a wily and experienced trout is the man who catches fish. But on a lake anyone who is reasonably proficient in casting has as good a chance of filling his creel as the most ingenious tactician—and to most people the bag at the end of the day is the real measure of success.

No doubt the explanation lies in the difference in the feeding habits of trout in running and in still water. In a stream trout lie poised waiting for the insects the current will bring down to them and the angler's art consists in deceiving a fish into accepting the false for the true. But in still water there is no current to deliver a meal to a stationary trout; it has to hunt its food which it does by scouring the bottom in shallow water or working its way through the top of a weed bed and absorbing any trifle which is thereby dislodged. Always it is looking for something moving: a shrimp darting to cover in the weed, a sedge making its hurried ascent to the surface, the larva of a dragon fly leaving its shelter under a rock. Therefore a moving bait is much more likely to attract its attention than any careful imitation of a fly poised on the surface.

Moreover a brightly-coloured fly, though a close examination may suggest it is like "nothing on earth," is more easily seen by a trout from several yards away and is likely to be chased and caught without too much consideration of its edible qualities. So most successful anglers on lakes still find the traditional type of "fancy" fly more remunerative than the sober-coloured insect which at least has a superficial resemblance to the natural food of the water.

Nine-tenths of the fishing is done from a boat: since trout are continually roving over the shallows for food the angler must rove too, and this is more easily done from a boat than from the bank. Either the craft is rowed upwind and allowed to drift down (where the lake is shallow and fish may be found feeding almost anywhere) or the angler is rowed slowly along the shore, and casts his flies (usually two) towards the bank just in the place where the shallow inshore water deepens suddenly, for here is the best chance of a fish feeding in a position in which the boat will not easily be seen.

Rods are usually longer, for most men like to "play" their flies, the dropper being kept just touching the surface, which simulates very well a fly struggling to free itself from the shuck. Many lake flies such as Cloëon (which has no popular name but is very much like an olive, in fact it takes the place of olives in many lakes) spend twenty minutes on the surface while hatching out and give occasional wriggles in the process, so the dropper can be made to imitate their behaviour; but with a short rod the cast must also be very short and this is a disadvantage as the fish are apt to see the boat and "shy off." In fact one of the most successful anglers on Blagdon used a salmon rod of about 13 ft. in length. But the normal rod for lake fishing is about 11 ft. long. Otherwise the tackle differs but little from that used in stream fishing except that it is coarser to suit the larger flies.

Quite a considerable part of a lake fish's food in the summer consists of land insects which have been blown on to the water—far more than in rivers. Bees, wasps, ants, beetles and daddy-long-legs get blown on to the water at times and often bring on an astonishing rise of fish. Artificial imitations in this case are fished on the surface rather after the fashion of a dry fly, though not always allowed to float naturally. The ripple on a lake when there is a wind conceals the "drag" of the gut so these surface flies are also often "played."

These great falls of daddy-long-legs have led to a method of fishing the natural instead of the artificial fly which is known as "dapping" or blow-line fishing. A long

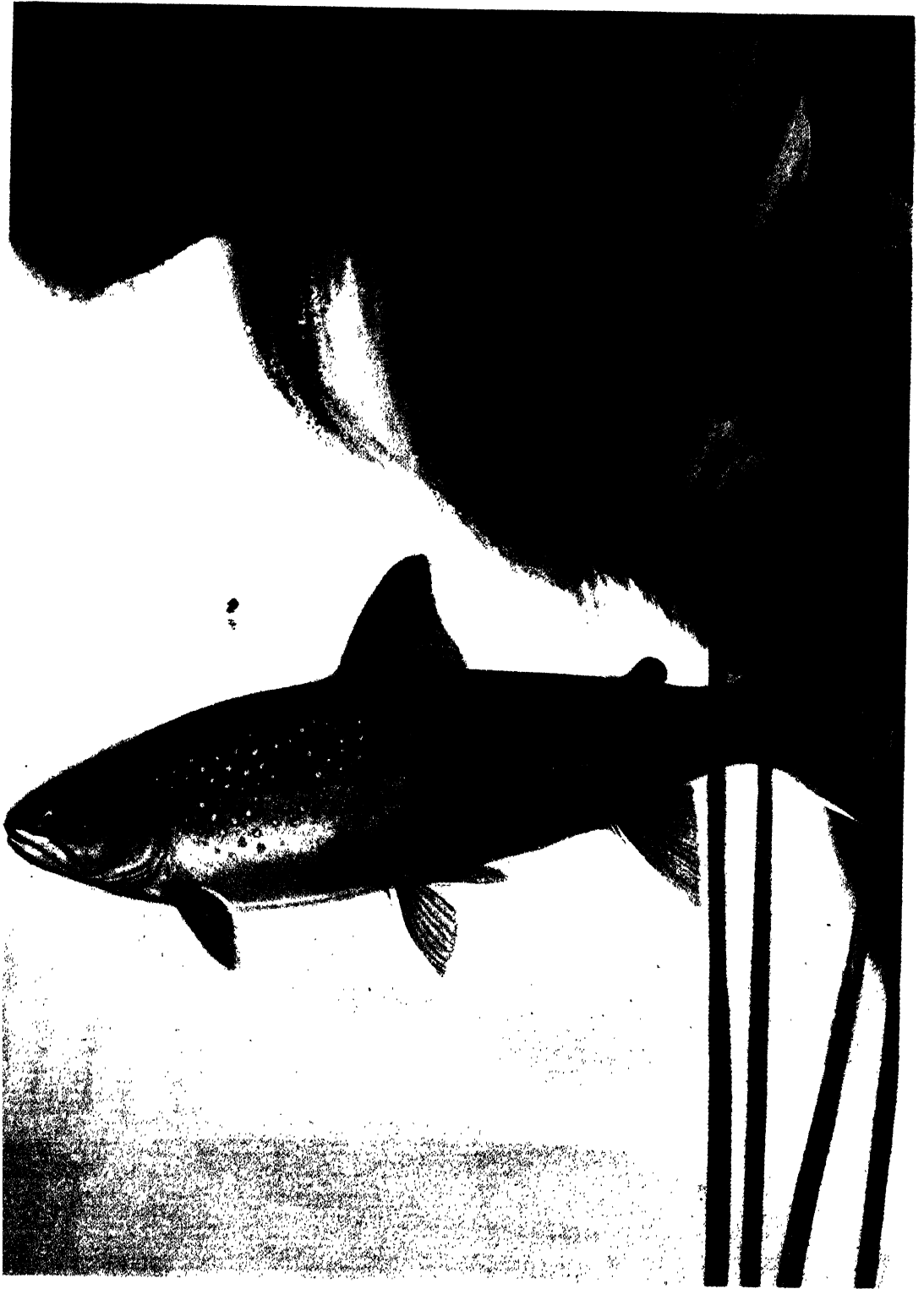


PLATE 46 WINDERMERE CHAR (*SALVELINUS WILLOUGHBII*) GT. BRITAIN

light rod is used of 12 ft. or so and between the line and the gut cast is introduced 2 or 3 yds. of floss silk. This spreads and offers more surface to the wind. Two or three natural flies are impaled on the hook and, instead of being cast, the line is allowed to blow out over the water, the art being to allow the flies just to touch the surface as do the natural flies when they are struggling to rise again from the water on to which the wind has blown them. The sport is not so much practised in England as it is in Ireland where on some of the large loughs there are two recognised seasons for it: one for the mayfly in early June; the other for the daddy-long-legs (or Harry-long-legs as it is called in Ireland) in August. Although some lakes have a hatch of mayfly, in England it generally occurs as a rather long-drawn-out series of small spasmodic hatches and is not as a rule a very remunerative season.

In rivers, however, it is otherwise. To anyone abroad not conversant with the fly life of English streams there is apt to be some confusion over the term mayfly. Eaton, the notable entomologist, through some curious error, gives all the order of the *Ephemeroptera* the popular name "mayflies" and other entomologists have unfortunately followed his lead. This is quite incorrect. The order comprises most of the commoner flies found on English streams which the angler tries to imitate: mayflies, olives, pale wateries, iron blues, march brown, blue-winged olives and many others; but the popular name applies only to one genus *Ephemer*a, the true mayfly, and it is always this fly which is meant when an angler speaks of mayflies or the mayfly season. There are actually three species found in Britain but they are so much alike that they can only be distinguished by careful examination and as distinct species are only of interest to an entomologist.

The fly itself is a succulent insect about an inch long, with a yellowish-grey body and darkly-veined large wings. In favourable seasons it hatches out in incredible quantities and every fish in the river seems to go mad. Thirty years ago I have seen the Kennet aboil with fish up- and downstream as far as eye could reach. Here and there the wash of some great fish, which probably never rose to a fly at any other time of year, seemed to disturb the river almost from bank to bank; flies in myriads danced in the sunshine on the railway platform, invaded the carriages on the trains and, to non-anglers, became a veritable nuisance. Such hatches are seldom seen today though the cause of the decline is quite unknown. The lowering of the water by extraction for domestic consumption and increasing pollution are the causes usually assigned for it; but there are still substantial hatches if the weather is favourable. The season is mostly in June, the name having been given before the change in the calendar which brought June eleven days earlier than it was in the sixteenth century.

Nowadays the glory of the mayfly season has largely departed. No longer do men arrange with the river keeper to send them a telegram directly "the fly" is up. No longer can we echo Charles Kingsley's enthusiasm: "For is not the green drake on? And while he reigns all hours, meals, decencies and respectabilities must yield to his caprice. See, here he sits, or rather tens of thousands of him, one on each stalk of grass—green drake, yellow drake, brown drake, white drake, each with his gauzy wings folded over his back, waiting for some unknown change in temperature, or something else, in the afternoon to wake him from sleep and send him fluttering over the stream."

Perhaps it is that increasing skill has made so many men prefer the fishing with a small fly, and welcome rather than otherwise the change which has barred the mayfly from many of its accustomed haunts, for the season was always followed by six weeks

of very poor sport for the fisherman; perhaps the desire for capturing a real monster is dying out. But the best chance of a really large fish in a river still lies in the mayfly season; fish which will look at no fly at any other time of the year, fish of 4, 5, 6 or even, if the old days were to return, of 9 lbs.—the fish, in fact, of a lifetime, of several lifetimes.

But those days may return. The mayfly's coming and going is one of those mysteries which nature is loath to reveal. It disappears from a reach for a year, for ten years, and then suddenly appears again. Its hatch moves upstream, downstream; it increases slowly, comes to a climax and as slowly dies away. It appears where it is alleged never to have been seen before. It vacates its accustomed playground with a like insouciance. And men devise theories to account for it, theories which are ignored by the fly with heartless indifference.

So we may see again the great sport of the nineteenth century when "the fly" was the great event of the angling season; and once more it may evoke the old enthusiasm. Who knows? After all, there is hidden in most men's natures a craving for that "one hour of glorious life."

COARSE FISH

By NORMAN L. WEATHERALL

General



FRESH WATER fish are customarily ranked as either game fish or coarse fish. Game fish comprise members of the *Salmonidae* family—salmon, trout and grayling. Coarse fish comprise the other species—pike, perch, chub, tench, bream, barbel, roach, rudd, dace, eels, etc.

Why coarse fish have attracted such a libellous adjective, except as a means of distinction, is not clear. It is certainly not because they are coarse looking, for many are most handsome, shapely, and beautifully coloured. Is it because of their edible properties? The eel, however, is a well-known delicacy. The gudgeon is very tasty. The perch well merits his title of “the fresh water sole.” Pike figured at all the big feasts in mediæval days. During Edward I’s time, their value was higher than that of fresh salmon and more than ten times that of turbot or cod. During Henry VIII’s reign, a large pike sold for double the price of a house lamb in February. Nor is coarse tackle used, for that of coarse fishermen—on which they often have to cope with much bigger fish—is usually much finer than that used by game fishermen.

Coarse fishing offers considerable variety. The fish frequent all classes of water. The fishing methods differ widely. For real success, the habits, haunts and feeding idiosyncrasies of each species have to be studied. Moreover, the coarse fishing season, including that for grayling, customarily extends from mid-June to mid-March, and this gives fishermen who also fish for salmon and trout, an all-the-year-round sport.

Personally, we would be prepared to concede that all coarse fish possess sporting qualities, though naturally they differ with the particular species and the size of the fish. These sporting qualities are also experienced at their best if the tackle employed is such that it demands more artistic and skilful usage than just skull-hauling a fish in.

For the roach, which is the most widely distributed of all our fresh water fish and requires a lightning-like strike, the tackle employed by the experts is as fine as a 000 (2-lb.) line, an 8x cast, and a mere No. 20 hook. When Mr W. Penney caught the record roach of 3 lbs. 14 ozs. from Lambeth Reservoir, he had three bites that day: the first came to nothing; the second produced a grand roach of 3 lbs. 1 oz.; the third produced the record.

The wary and cunning carp, when he can be persuaded to take the angler’s bait (this week, next week, now or never!), can display an amazing turn of speed, strength and stamina. A noted carp-fisher once hooked into a monster carp, estimated to weigh 25 lbs., at 11 a.m., played it until 4.30 p.m., and then lost it—through impatience! On the day (9 a.m. to 1 p.m.) when Mr. A. Buckley caught the record mirror carp of 26 lbs. from Mapperley Reservoir, he also caught two other big carp of 15½ lbs. each, three others

of 14½ lbs., 11½ lbs. and 9½ lbs. respectively, not to mention two monster roach of 3 lbs. 6 ozs., and 2 lbs. 12 ozs. The 26-pounder took nearly an hour and a half to land, on a 3-lb. or 4-lb. line and 2x gut.

The bearded barbel is another hefty fighter, whose powers, compared with a salmon of equal weight, would probably surprise many salmon fishermen. A friend of mine spent some two and a half hours landing what was possibly a record barbel and then lost it through someone else bungling getting it into the landing-net!

The hog-backed perch is a bold biter and a game fighter. The tench combines at times most tantalising reluctance to take the fisherman's bait with an equal reluctance, when at last he has deigned to take it, to prolong the acquaintance any longer than he can possibly help.

Bream may not be famous for their fighting powers, but they atone for that by yielding themselves up most generously by the stone if they are in a feeding mood. Even so, the record bream of 13½ lbs., caught at Chiddingstone Castle Lake, took 23 minutes before it finally succumbed. One may also have fast and furious sport with the handsome rudd, who is at times a free riser to a fly. Even the smaller fish have some sporting qualities. Those of the free-rising dace, for instance, are such that the angler's one regret is that this jolly fish does not reach larger proportions. Raking for gudgeon also affords pleasant entertainment.

Unfortunately, space does not here allow of discussing, at length, the sporting qualities of each species of coarse fish. Our attention has therefore to be limited to two fish: the predatory pike—our biggest, boldest and most voracious true fresh water fish, and the omnivorous chub—because of its personal characteristics, distinctive haunts, and the many different methods by which it may be angled for.

The Pike

The pike is generally distributed throughout the British Isles, but becomes scarce and local in Northern Scotland. He is found all over Europe (except in Spain and Portugal), in North America and in Asia. In Britain there is only one species—*Esox lucius*—of the Pike, or *Esocidae*, family of fish.

Esox is a strong, powerful fish. He looks what he is—a bold, savage, predator. Even if he be no boudoir beauty, yet, in a fierce and rugged way, he is handsome. His whole streamlined body is curved in a slight arc, from snout to tail. His shape is elongated and of a more or less uniform depth, and, with compressed sides, he is almost "four sided." He has a long, flattened head. A sinister looking lower jaw protrudes a little beyond the snout, giving a duck-billed effect. His big, yellowish eyes are situated centrally, close together, and more on top of the head, giving more of an upwards view than is possessed by other fish. The dorsal and anal fins are placed far back along the body, and these, together with a broad and slightly forked tail, assist the pike to achieve his sudden fodder-snatching turns of speed.

He has a dark olive (almost black) head and back, with grey-green-goldy mottled sides. These mottles, in his young pikelet days, are more in the nature of stripes. The sides shade down obliteratively to a silvery belly. Altogether, his coloration blends most harmoniously with his natural surroundings amid his weedy and reedy lairs. It also varies in tint with the changing seasons, with age, and to some extent also with locality, and is at its handsomest with the approach of spawning, when the pike attains his prime of condition.





It is, however, his great wealth of teeth which has earned for him his renown as the fresh water shark, the water-wolf, the tyrant of the fresh waters. Around each side of the lower jaw are some half a dozen large, sickle-shaped canine fangs. The tongue is padded with a mass of small, sharp teeth. On the roof of the mouth are three other bands of similar teeth—one band on each of the palatine bones and one on the vomer. The fangs are rigid and assume particular importance when it comes to grabbing prey. All the smaller teeth, however, are hinged posteriorly inwards and are capable of depression. They thus permit food to *enter* the pike's great cavernous mouth, but, also being capable of standing almost erect, they prevent *escape*. In other words, the pike's throat is a one-way-street! He customarily seizes his prey lengthwise, amidships, and then turns it headfirst into his throat.

Stoddart's description of a pike's seize is worth repeating: "It is not a bold, eager, voracious grasp; it is a slow, calculating grip. The whole is mouth-work; calm, deliberate, bone-crushing, deadly mouth-work. You think you hear the action—the clanging action—of the fish's jaw-bones; and such jaw-bones—so powerful, so terrific. You think you hear the compressing, the racking of the victim betwixt them."

Some ripe old ages have been attributed to pike—anything up to almost a century. With pike, size and age bear no very constant relationship. Although age, or rather survival, is one obvious factor, growth depends largely upon the amount of food available. A pike in one water will attain a given weight in half the time required by a pike in another water. Hence, bigger pike generally come from those waters where pike-fodder most abounds—the Norfolk Broads, the Hampshire Avon, the Herefordshire Wye, the great Irish Loughs. To quote but three pike and their ages, a Lough Conn pike of "well over 40 lbs." was put at 25 years, a 31-lb. Windermere pike at 16 or 17; a 35-lb. pike (from Rapley) at 12 to 15 years. It also appears that, provided they survive long enough, pike not only cease to grow but there follows what Dr C. Tate Regan (*British Freshwater Fishes*) termed a period of "senile decay," and, aged, worn out, lanky and large-headed, they may ultimately die simply through their inability to capture, or assimilate, food.

Irish pike attain to much larger average sizes than English pike. Taking the respective record rod-and-line caught fish as yardsticks, we find that Irish pike, where the record is a 53-pounder, are nearly half as heavy again as English pike, where the record is a 37½-pounder. Various theories have been put forward to account for this, the chief ones being the great abundance of food in Irish waters, longer survival due to less intensive fishing, and an alkaline water.

Pike are prolific breeders, or rather they would be if all their eggs fulfilled their intended destiny. Buckland quoted a 24-lb. fish as containing 224,640 eggs; a 32-pounder to contain 595,200; William Senior quoted a 28-pounder as containing 700,000.

Normally, even in their young pikelet days, pike are solitary, non-gregarious fish. About February or thereabouts, however, they begin to "pair" up, though actually one Jill may have more than one Jack dancing attendance. Their matrimonial activities, during the following two months or so, are usually carried out in shallowish water, up side streams, ditches and backwaters, and amid the weeds and reeds of the shallow bays. Irish pike spawn somewhat earlier than English pike.

Most big pike are female. Why, has not been clearly established, unless it be because courtship sometimes ends in the lady making a meal off her suitor!

In their young pikelet days, after their umbilical yolk-sac is practically exhausted, the main food of pike consists of water insects, larvæ, shrimps, worms, minnows and other small fry, including, even at this early stage, pike fry! Later, their diet becomes mainly piscivorous and consists of any and every kind of finny fodder that happens to be ready to hand—or rather ready to mouth.

An outstanding characteristic of the pike is his gluttonous voracity. Like the boa constrictor, one day he will gorge himself to repletion, and beyond, and then will follow a period of complete disinterest in food. With "eyes bigger than his stomach," he will "have a go" at practically anything, even if, as has often happened, he choke himself to death in the attempt. Two fish, both of nearly equal size, which together weighed 19 lbs., were once found on Loch Tay with the head of one within the mouth and jaws of the other as far as the gills. A pike of some 7 or 8 lbs. was once seen to seize a trout as large as itself. The trout made desperate efforts to free itself but after two hours became exhausted, and it took the pike three whole days to completely swallow that trout, the period of digestion—indigestion!—actually lasting much longer, for the pike had "a very swollen appearance" for a week afterwards and, even when poked with a stick, could hardly move. A 28-lb. pike in the Brighton aquarium swallowed an 18-lb. pike and survived the gastronomic achievement.

A veritable garbage-bin where food is concerned, and in spite of orthodox baits being legion, pike have been fished for with mutton-bones, mackerel heads, sheep guts, live swallows and sparrows, mice, rats, moles, frogs, newts, bacon, berries, cheese, calves' and eels' tails, rabbit's and hare's ears, and salmon flies. Taken—mistaken!—for food, coins, spoons, rings, plummets, watches, a 3-in. butcher's hook, the lid of a sardine tin complete with opener, the cylinder part of an electric battery, even a beer bottle, have all found their way into the pike's stomach. Ducks, moorhens, pheasants, grass-snakes, rabbits, puppies and kittens have been taken. Swans and dogs have been dragged under. Horses, oxen and mules have been seized by the nose when drinking. Even human beings have been "attacked." One authentic case was that of a fifteen-year-old boy who, whilst swimming, was twice attacked—in one attack his hand was engulfed up to the wrist—by a 41-in. pike—the boy sustaining some nasty wounds.

Whatever may be said against the pike, it must, in fairness, be also said that he helps to maintain the general standard of fitness of the other fish by removing the sickly and the weak. At the same time, it must be confessed that pike (especially Irish pike!) have been the subject of more lies than any other fish.

The whopper (!) was the "Emperor's Pike," reputedly taken from a Wurtemberg lake in 1497 and bearing the inscription: "I am the fish which was first of all put into this lake by the hands of the Governor of the Universe, Frederick the II, the 5th October, 1230." The age of this Methuselah was thus 267 years! Its length was 19 ft.! Its weight 544 lbs! Unfortunately, however, the vertebræ were found to be far too numerous to belong to one fish only! There was also the Lillishall Pike, of upwards of 170 lbs., which, according to a London paper of 1765, had to be drawn out by several men with a stout rope around its head and gills. Omitting two or three other leviathans, we next come to a fish of 90½ lbs., 5 ft. 8 ins. long, reputedly captured in 1862 from Lough Derg, on "a common brass shoe-lift."

One of our best authenticated monster pike is the famous Loch Ken fish, said to have been captured about 1774 on a 3½-in. pike-fly (a peacock's feather). Dr Tate Regan said that measurements he made of its head, which was preserved at Kenmure Castle,

indicated that the fish probably weighed as much as 61 lbs., if it was in good condition, and possibly even the claimed 72 lbs.

In 1926, on the River Shannon, a 5-ft. 9-ins. dead pike was found. In its throat was a partly swallowed 15-lb. salmon, and the weight of the pike was conservatively put at "well over 60 lbs."

Then come accounts of a 65-lb. fish, two 63-pounders, and, in 1942, the claim to the capture by Mr Patrick Thornton, from Lough Corrib, of a 60-lb. pike, after a two hours' fight. Most unfortunately, this fish was cut up into three pieces before weighing, and it has not been accepted as constituting a new Irish record.

Another 60-pounder was found in a dying condition in Dowdeswell Reservoir in 1896. This fish is preserved in the Cheltenham Town Museum. In 1851, when Whittlesea Mere was drained, a 52-pounder was taken out, and Dr Tate Regan said that this may be regarded as the record English pike.

The record rod-and-line caught Irish pike is the 53-pounder caught, on a copper-and-silver spoon, by Mr J. Garvin on Lough Conn in 1920. It took three hours to land. Its length was 51 ins. Its girth, 36 ins.

The record rod-and-line caught English pike is the 37½-pounder caught by Mr Clifford Warwick, in 1944, on the Hampshire Avon at Fordingbridge. Length, 49 ins. Girth, 24¼ ins. The bait was a 1-lb. roach, on snap-tackle. When, after a very thrilling fight, this pike was finally lifted from the water in the arms of the captor and his companion, it disgorged 4 lbs. of fish, but for which the record would have figured at 41½ lbs. The previous record was shared by two fish, each of 37 lbs. One was caught in 1910 by Major W. H. Booth on the Wye. The other was caught in 1879 by Mr Alfred Jardine at Shardeloes Lake, Buckinghamshire.

Any non-Irish pike of 20 lbs. and over is worthy of glass-casing. An alternative is to have only the head set up, or to retain the skeleton of the skull. Fishermen—especially pike-fishermen!—sometimes need tangible evidence!

Time was when gorge-fishing could be legally practised. Employing *trolling*, sink-and-draw methods, the pike was allowed anything up to ten minutes or so to get the bait, or more particularly the hooks, well pouched down its inside.

Live-baits would sometimes be "Dutch couraged" by giving them an occasional nip of brandy!

"Huxing" was one olden-time "sporting" method. A live-bait was affixed to a goose or duck, which was then sent afloat and sometimes chased all over the water. "The bait soon caught the eye of a greedy pike," said the Revd. J. J. Manley, "which, swallowing the deadly hook, not only assisted the progress of the astonished gander, but forced him to perform half a dozen somersaults on the surface of the water. The struggle was most amusing, the fish pulling and the bird screaming with all its might, the one attempting to fly and the other attempting to swim."

One pattern of "Trimming" outfit—the "Man-o'-war"—consisted of a large flat wooden or cork "float." One side was red, the other white. Some 3 ft. below was the bait. Line was coiled around a groove at the edge and then passed into a nick to prevent unwinding. When a pike took, this tilted the float, giving more line to the pike, who then pouched the bait. All the "angler" had to do was to go around gathering up those outfits which showed white uppermost.

"Liggering" entailed the use of a bundle of dry rushes or sedges. Strong line was wound around, with a live-bait at the end. Jardine tells us that fifty or more of

these outfits were set on the windward side of a broad, generally overnight. In the morning, the "liggerers" rowed out to gather up the slain. Four days of this so-called "sport" at Heigham Sounds once accounted for 256 pike, of a total weight of 1,135 lbs.

Salter (1808) records that an annual exhibition took place at Ramsey Mere, Huntingdonshire, called a bottle-race. Much betting took place as to which bottle killed a pike first. Line was tied round the neck of the bottle, and a bait attached. Several of these outfits having been ranged in a row, they were "all launched at a given signal, and much amusement and delight is afforded the spectators, by the jack or pike dragging the bottle about, and often two would come in contact."

Today, the methods and tackle employed in pike fishing are very varied. There is live-baiting (float-fishing and paternostering), spinning (Nottingham, threadline and multiplying styles), and ledgering (for heavy flood water, to angle out a known fish, or to search deep water having an irregular bottom). Sometimes one comes across the "keen type" who delights in pike fishing with ordinary roach tackle and a live minnow on a No. 9 hook. On 4x gut, only the angler's personal skill avoids break-ups. "Trailing" methods are sometimes used in Ireland, Scotland, the Lake District, and the Norfolk Broads. With this, the bait is trailed from a moving boat. It can scarcely be classed as a particularly sporting or skilful method, however. Moreover, the tackle employed is usually so stout as to reduce to a minimum the sport of playing a hooked fish.

Pike fishing rods are customarily made of split cane, greenheart, or steel. The reel usually used for live-baiting is of the revolving-drum Nottingham type, casting two-handed. Although the reel probably has an adjustable tension "drag," most fishermen also employ finger-control braking on the rim to prevent over-runs. A line of 10 lbs. to 14 lbs. should be amply strong enough on most English waters. A good combination is to have a gut or gut-substitute trace and, in view of the pike's sharp teeth, a twisted strand wire hook-length to the snap-tackle which tethers the bait. The snap-tackle, with its two or three treble hooks, is the answer to the evils of gorge-fishing. On the snap, pike may be struck as soon as the hooks have made contact with the pike's mouth, but, according to the pattern of the snap, it may be necessary to wait until the bait has been turned headfirst into the pike's throat.

With the float-fishing arrangement of tackle, the lead weight is *above* the live-bait. This tackle is for use where there is no need to anchor the bait, such as when fishing still waters, where there is no contrary wind, for dropping in gaps in weeds and reeds, for working a bait with the current, in and around eddies and tails of weirs as also when operating directly downstream from a boat. With the paternoster arrangement—in which a float (or "bung" as it is called) is also used—the weight is *below* the bait. Fished with the lead on the bottom, the bait can be held anchored to any desired spot, whether or not there be a current or a contrary wind.

Pike will take any kind of live-bait, including frogs and goldfish. A likely bait for a big pike is always a small pike. Dead sprats and herrings have also been tackled up as live-baits. In coloured water, a dace obviously shows up better than the duller gudgeon. Some fishermen prefer to lip-hook their bait, particularly if it is a small bait, instead of using snap-tackle. A point where some live-baiters err is that they confine their activities—inactivities!—too long to one spot. Instead, they should now try here, now there, a quarter of an hour's spell at any one spot usually being ample time to prove the existence or otherwise of a feeding pike.

Spinning, however, is becoming increasingly popular. Many pike fishermen find



PLATE 49

SEA TROUT (*SALMO TRUTTA*)

GREAT BRITAIN

this a more interesting, fascinating, artistic, skilful, energetic and sporting method. It also covers so much more water, and hence so many more potential takers. It may be that more really big pike have been taken live-baiting. Big pike have a lazy, leisurely streak about them and hence may not be inclined to go chasing after a bait in full flight. Spinners should therefore spin slowly and deeply. The fact is that spinning methods are capable of taking big pike and big bags of pike. The fact is, too, that if pike are really on the feed, they will be found taking any and every kind of bait, whether it be live, dead, dying, or artificial.

Some spinners use the Nottingham reel. Others prefer the threadline outfit. The reel here has a fixed spool and, with a slipping clutch, lines of a surprisingly low breaking-strain—as low as 1 lb. or 2 lbs.—can be used. There is, however, considerable risk of line breakages if the bait snags on the bottom or in weeds. Another style which has also gained popularity in recent years is the multiplying outfit. The reel here is of the revolving-spool type, with a level-wind line distributor. It is fished on top of the rod, with, in addition to a drag, thumb-pressure control on the spool. Lines of from 8 lbs. upwards are used. The rod used is more usually in the neighbourhood of 5 ft. or so. Casting is effected single-handed, by side-swipe or overhead casts. A satisfactory trace for spinning purposes is of single strand wire. Swivels prevent a lot of line and trace twists and kinks.

Pike-spinning baits are legion. There are numerous patterns of spoon baits, including the Improved Kidney, the Colorado, and the "Silver Devon" bar spoon. There are Devon Minnows, Wagtails, Messrs Allcock's "Nevison" range of preserved fish, and the modern plug-baits (such as Messrs Hardy Brothers' "Hardy-Jock Scott Wigglers") which can be fished on the surface or dived deeply.

Another necessary item is a gag, to keep the pike's vice-like jaws open when extracting the hooks, for it is not good politics to go poking one's fingers about in the mouth of a pike, dead or alive.

Pike thrive in all kinds of water, whether fast-flowing or still, whether river, lake, broad, pond, canal, reservoir or old castle moat. In summer, they will be found more in the vicinity of their proverbial lairs—among the weeds and reeds, the rushes and the lily-pads, where plenty of food is handy. In winter they cannot usually satisfy their "inner man" so easily. A lot of the weeds have died down. Spurred by hunger, their traditional dash and savagery and keen appetite regained, pike have now more to go out a-foraging for food, and the pike fisherman may therefore happen upon them almost anywhere and at any depth. Their more normal "lie" in the water, however, both in summer and in winter, is down near the bottom, and it follows that the fisherman's bait must also be set, or worked, at such a depth as will ensure that it come within range of the pike's eyes. Generally speaking, the more likely haunts of pike are in all deep, quiet water and in the more restful bends in streamy waters; in holes, eddies and slacks; off the beds of reeds and rushes; in the reedy bays; around lily-pads; in the vicinity of weir and mill pools, roach "swims," off the tails of islands and the mouths of side streams, and, especially in still waters, in all deep corners.

Pike are late recoverers from the effects of spawning. In the summer months they may tend to be "loggy." From about October onwards, however, sport begins to be really worth while. Pike are now fighting-fit. Their appetites are whetted. Prospects should improve each month. Finally, the pike fisher might expect to reap the very best of his sport during February or thereabouts, for pike are now beginning to turn their

thoughts to their own domestic affairs and their appetites are keener than ever. However, some fishermen find October and November give the best sport. The midday hours—between, say, 10 or 11 o'clock in the morning and up to within, say, an hour of darkness setting in—are reckoned to be the best part of the day.

The salmon, weight for weight, may have greater strength; it may be more renowned for its "knightly rushes" and its "princely leaps"; but that "the fresh water shark," especially when in prime of condition and on light modern tackle, is a doughty adversary need not be doubted. This bold predator has size, considerable brute strength, and stubborn determination. A hooked salmon, it is commonly stated, takes on the average one minute per pound of its weight before it is sufficiently spent to be gaffed. Pike require a similar time—or more! To achieve final success over a hooked pike can exact the fisherman's highest skill and patience. When pike are not on the feed, the angler has to don his thinking-cap to *lure* them. His best hope here is to play upon their psychological make-up—their innate greed. He has so to present his bait that it arouses his quarry's interest, curiosity, anger, or predatory instinct, after which he may then come to terms.

A pike's first rush, on recovering from the stunned shock of finding himself hooked, it may be impossible to stop, as also his last desperate but game efforts. He may indulge in a spirited leap or two, especially if in shallow water. Pike, like salmon, have occasionally obliged by leaping into the fisherman's boat! Jardine's 37-pounder several times leaped some feet out of the water. Another pike is said to have jumped 5 ft. into a barge, but that is perhaps a tall story! A dangerous stage is if the pike commences "jiggering"—shaking his head like a dog with a rat, his mouth wide open, "backing" in the water, and almost standing on his tail—for a lot of brute strength is then being applied against the tackle.

In short, such are the sporting qualities of the pike that in his case especially it is indeed a libellous misnomer to dub him a coarse fish, for his sporting qualities well justify ranking him as a game fish. In North America, pike *are* rated as game fish!

Many epic fights with monster pike could be cited. Here, however, we must content ourselves with but one, and I have selected the capture by Mr Alfred Jardine—"Alfred the Great Pike Angler"—of a 36-pounder from Mote Lake, Maidstone, in 1877, the aftermath of which fight was even more spectacular.

At first, Jardine thought he had hooked only a small fish, for it came in towards him without much pulling. When, however, it was struck smartly, it soon began to show fight. It first of all tried to make a bolt. Then it rushed violently through the water, with its mouth wide open, towards Jardine. Arrived alongside the boat, "it grinned a ghastly grin," to quote Frank Buckland. Two pairs of eyes met—Jardine's and the pike's—with dire defiance of each other. The pike then shook its head violently, like a dog with a rat. It then plunged off for another waltz around the pond. At this stage, Jardine feared that the fish would get his line fouled around the anchor chain. Kneeling down on one knee, with one hand he tried, unsuccessfully, to haul up the anchor, meantime playing the fish with his other hand. In the end, he gave his entire attention to the fish. Several times he had it near the boat, but each time it plunged once more into the depths below, making great swirls with its tail. Finally, slipping the gaff gently into the water, he managed to gaff the fish under the chin. He then dropped his rod, got the fingers of his one free hand into its eyes, and hauled it bodily into the boat. All that was more or less child's play, however, compared with what followed. The pike now began to lash about most furiously. Jardine managed to get in one slight blow,

which the fish scarcely noticed. Lashing its great tail like a crocodile, it first upset his bait-can and scattered his live-bait. It then smashed up a bottle of sherry (fishermen did themselves better in those days!), a tumbler, some sandwiches, and a tobacco-box. By now, it had also rolled up all the loose lines. Jardine tried to get its head into a sack, but no sooner was this achieved than out it popped again. At last, managing to get the boat shorewards, a keeper lent an additional pair of hands and the two men finally succeeded in bagging the pike, though it was a long safe way inshore that they carried it before they risked delivering the *coup de grâce*. To complete the picture, this pike was subsequently taken along to Mr Buckland, for casting, on top of a four-wheeled cab!

The Chub

The chub—*Leuciscus cephalus*, of the *Cyprinidae*, or carp, family of fish—owes his name to his chubby head. He has many *aliases*—chevin (from the French *chevanne*, derived from *chef*, or head), chavender, loggerhead, alderman, knob, lob, bottling, poll, pollard and skelly (or schelly), the last-mentioned, used in Cumberland, probably being due to the large size of his scales. In France, the name *meunier* (or miller) was given, due to his frequenting mill streams.

In Great Britain, chub frequent most rivers except in West Wales, Devon, Cornwall and north of the Firth of Forth. They are absent from Ireland. Only occasionally are they found in lakes. Notable English chub rivers are the Hampshire Avon, Thames, Dorset Stour, Trent, Severn, Great Ouse and Wye. Outside the British Isles, chub are found in Europe (except the Iberian peninsular), in Asia Minor and in Persia. In North America there are seven fish called chubs. These, however, are members of the whitefish family and are therefore not related to the British chub.

Chevin is a plump, rotund, handsome, powerful looking fish. His head is big and bluntish. He has a big, wide mouth, and goldy-yellow eyes. In his throat, on the pharyngeal bones, he carries molar-like teeth which are capable of pulping his vegetable, herbaceous and insect diet. He has a dark back, with rich bronzy-hued flanks, shading down to a silvery belly. A feature of his fins is that the lower ventral and anal fins are ruddy-coloured.

His culinary virtues have received many scathing criticisms: "fit for nothing better than to manure rose-beds"—"like a horse that is hard to catch and good for nothing when caught"—"indistinguishable from a dish composed of a packet of needles, some wet cotton-wool soaked in mud, and a little powdered glass added as a condiment." On the other hand, Walton's *Venator* said: "Trust me, 'tis as good meat as I ever tasted." A majority of fishermen, however, will doubtless agree with Bickerdyke: "A right good fish to angle for, and a fairly bad one to eat."

It is said that in some large Continental rivers chub attain a weight of 12 lbs. In Great Britain, the largest recorded is a fish of 10½ lbs., said to have been caught in 1875 or 1876, on a live minnow, from the River Crane, near Bedfont, by W. Cockburn. There seems some doubt about the authenticity of this capture, however, and the record as generally accepted is therefore a fish of 8¼ lbs., caught by G. F. Smith, in December, 1913, on the Hampshire Avon at Christchurch. The age of this fish was reckoned to be about 12 years. Its length would have been over 2 ft. Any chub around the 5 lb. mark may be accounted a specimen fish.

One reason why the chub is such a pleasant quarry is that he frequents such pleasant places. One always thinks of chub as in association with picturesque settings, clear-

running streams, overhanging bushes and trees with gnarled old roots and fantastically coloured tendrils, fresh green weeds, sparkling glides, and the bed of the river with a clean, gravelly, sandy or chalky bottom. Chevin loves the gravelly shallows. We find him basking under shady alders and willows, beneath which he lies in wait for caterpillars and other insects to fall. We find him nosing around the submerged roots; in the vicinity of weirs and mill pools, camp sheathing, bridges and old sunken trees; up leafy backwaters; under overhanging clay banks. Warm, sunny weather tempts him to the surface. Cold, rough weather keeps him down in deeper water.

Gregarious of nature, chub associate together in what are proverbially described as "breath-taking shoals." Big, old chub, though, tend to become more satisfied with their own sombre company.

Chub spawn in May or thereabouts, on the weedy shallows of fast-flowing water. During the breeding season, the scales of the male become rough, and small tubercles develop on the head. After spawning, the fish like to spend a week or two scouring themselves in the shallow rapids of the stream or weir, where they recover quickly, and then return to their more normal haunts.

Where, as is often the case, chevin tenants trout waters, he is often viewed as "vermin." He happens to like the same commons as his "betters." He has a partiality for trout and salmon ova and fry. Still more unforgivable, the trout fisherman may at first think he is fast into a good trout! One recipe for encompassing chevin's mass extermination consisted of a compost of boiled rice, flour and *Cocculus Indicus*, mixed up with stale bread. This was thrown into all likely chub haunts. The chub subsequently floated to the surface in a state of intoxication and could be easily scooped out with a landing-net. This practice was termed "fuddling skellies."

In feeding habits, the chub is voracious and omnivorous. He is insectivorous, vegetarian, carnivorous and fruitarian. As he grows bigger and older, he tends to become more carnivorous and predatory. A lively bunch of plump maggots will still tempt him, but he is also likely to fall to a live minnow, gudgeon or bleak, to a frog, or to a small spun spoon. Good sport may sometimes be had with a plug fished on a threadline outfit. Among fruitarian lures may be mentioned stoned cherries, damsons, plums, gooseberries, strawberries, elderberries and banana cubes. Other successful baits include green peas, bacon rind, hempseed, silkweed, dock grubs, shrimps (sea and fresh water) and greaves. Walton mentioned "a black snail, with his belly slit to show his white." The more common float-fishing baits, however, are maggots, bread paste, worms and cheese, for which latter—in cubes, in a neat paste, or mixed with bread—chub appear to have a strong partiality. Balls of bread and bran make a good ground-bait.

Two other recognised chub baits, especially for winter work, are macaroni and bullock's pith. The macaroni should first be par-boiled in milk and used in $\frac{1}{4}$ -in. to $\frac{3}{4}$ -in. lengths, preferably on a small triangle hook. As regards bullock's pith (the spinal cord), the outer skin has first to be removed, and the pith then cut into convenient hook size pieces of about $\frac{1}{2}$ -in. or so. Some fishermen toughen this bait by steaming. The complement to this hook-bait is the use of bullock's brains as the ground-bait, these being well cooked and chopped up finely. Salter said that they had to be chewed by the angler and spat out of his mouth into the water—called "blowing the brains."

One characteristic which trout and chub have much in common is a retiring disposition. A footfall, a shadow, a movement, and they're off! This is why chevin was called "the fearfullest of fish." Whereas, however, a trout streaks off in a well

advertised flight, a chub just quietly, majestically fades away. The chub is therefore a fish which has to be stalked. The angler must exercise stealth in approaching. He must screen himself and his every movement. The catching of one, or perhaps two, chub from a particular spot usually puts the rest of the shoal "down" for some time.

The chub's sporting qualities, in fact, lie not so much in brute strength and lusty ding-dong battles as in his many other attributes. He takes a most catholic range of baits. He feeds at any depth, from the surface to the bottom. Although he both feeds and fights best during frosty weather, he affords good sport in both summer and winter. He may be caught by so many different methods—float-fishing, ledgering, fly-fishing, dapping, spinning and live-baiting. He is wary and cunning. He must be stalked. More usually he lies in inaccessible and awkward places. Chub haunts are notoriously unhealthy spots for the angler's tackle. To present a bait is often most difficult. As George Rooper (*Thames and Tweed*, 1870) said: "It is essential to throw a very long line, deftly, *over* the weeds and *under* the bough and *short* of the bank."

Upon striking a chub, the fisherman must be prepared immediately to give line, for chevin's first reaction is to dash off in a powerful headlong rush, with a view to gaining some well-known cover or hidey-hole, such as among weeds or submerged tree roots. W. J. Martin quoted one old-timer as asserting that "a chub hardly ever takes a bait the first time it goes past him; but simply looks out for a convenient stump or root, and next time, seizing the bait, dashes headlong round its chosen retreat." If, however, he can be held or turned before he reaches his sanctuary, or can be kept in open water, he then appears to become dispirited or "dead-hearted," and the fight is thereafter not long. As always, however, the finer the tackle, the greater the sport.

Another faculty the chub possesses is that of seizing hold of some part of his retreat, such as weeds or willow stems, to aid him in his resistance. "On occasion," said J. H. R. Bazley (*Coarse Fishing*), "the fish obtains its freedom by tying up the cast in the woodwork and making it fast, but much more often takes hold of a portion of the obstruction in its jaws and remains a fixture for the time being, eventually leaving the hook on the root or branch."

As the chub is such a wary fish, it follows that ledgering and long-trotting methods are less likely to give him cause for alarm. In effect, long-trotting is swimming-down tactics conducted from a moored boat. A 4-lb. or 5-lb. line, well greased, a 2x gut cast, a really free-running Nottingham reel, a float, and hooks to suit the particular bait, constitute the average tackle. The bait, fished near the bottom, is worked into all likely spots, taking advantage of the current and of rod-tip control. Chub usually give a decisive bite and the strike can be equally decisive.

But it is to the fly-fisherman that the chub, who is a good riser, affords the best sport, especially during the hot summer months. Ordinary trout tackle is suitable, with gut casts tapering down to 2x or 1x. One may adopt dry- or wet-fly tactics, according to whether fish are at the surface or deeper down. One may also "fish the rise" or "fish the water." On no account, however, should chub be "flogged." They seem to prefer the bigger, fully-buzzed flies. Patterns commonly used include Palmers, Zulus, Hare's Ears, Alders, Mayflies, Coch-y-Bondhus and Coachmen. Alexandras have also taken some nice fish. A tactic with chub is to let the fly (and the fly only!) alight on the water with a "splash," as though it were a heavy natural insect. A commonly successful tactic is to plop the fly down suddenly just behind the fish. Another dodge is to "garnish" the fly with one or two maggots or grubs. A pleasant way to fish is to allow one's self

to drift slowly downstream in a punt or a canoe, meantime working one's fly into all likely spots.

Another fascinating method is dapping—*alias* daping, dipping, dibbing, dibbling, bobbing, bushing, etc. Although this method may be practised under other conditions, it enables spots otherwise unfishable from a bank overgrown with bushes and trees to be fished. The rod should be one which is easy to handle and manoeuvre. Some anglers use an ordinary fly rod. Others use an ordinary bottom-fishing Nottingham rod. A gut cast of about 2x or 1x should be strong enough for average sized chub. No float is used. About 2 ft. from the hook, a split-shot is pinched on to the cast. A small drilled bullet, which is held to position by the split-shot, is then run on. As regards baits, the angler may offer almost anything—alive, dead or artificial—grasshoppers, caterpillars, beetles, bees, bumble-bees, frogs, wasps, hornets, butterflies, moths, mayflies, bluebottles, de-shelled snails, slugs, any large fly, a bunch of maggots, worms, paste, cheese; in fact, as has been said, almost anything, but especially natural insects.

The fascination of dapping lies largely in the angler's having to adopt stalking tactics, creeping and crawling about and getting himself and his tackle into—and out of—some very awkward places. He has first to locate the whereabouts of a shoal of chub. This done, and having assembled his tackle at a safe distance away, he then stealthily makes his back-creaking way to the pre-selected spot. Where there is no bank growth, the angler can, of course, operate lying or kneeling down, screened behind, say, a clump of reeds or rushes, or from behind a tree trunk. Typical dapping tactics, however, are more "key-hole." With his line and cast reeled in as far as it will go through the top rod ring—if necessary, the last two feet of the cast may be first wound around the top joint—the angler very cautiously, *s-l-o-w-l-y* insinuates his rod over, or more likely through the branches and foliage and so out over the water. The bait, drawn down by the bullet, can then be *s-l-o-w-l-y* lowered to within a foot or so of the surface. At this stage, it is a good plan to lightly flick in a few "free tasters" of the hook bait. Then, at what the angler judges to be the psychological moment, he offers his lure to his pre-selected victim—the biggest chub on view, needless to say! According to where the fish is, so the bait may be offered at the surface or allowed to sink deeper. These tactics, too, may be practised minus the lead weight, if circumstances permit. The fun and sport, when a big fish takes a dapped bait, and makes off on his first headlong rush, can be easily imagined. Suffice it here to say that dapping has taken many big chub, though it is, of course, more of a summer method.

To illustrate further to what extremes a keen fisherman will go in pursuit of chub, I would cite a friend of mine. He often goes off for a day's fishing—or rather not so much for a day's fishing as to enjoy the many other things associated with fishing. One of these is to amble off for an hour or two, wandering quietly along the bank, seeing what fish can be spotted. This friend, in his rambles, will sometimes climb a tree, perch himself aloft on a branch overhanging the water, light a cigarette, and there sit watching fish. On one such occasion, he spotted a fine shoal of big chub. It would, however, not have been possible to get a bait to them in the normal way. The branches of the tree were too dense to permit of a rod and line being got through. Bank conditions ruled out attack from there. The water was also too deep to wade. On my friend's next expedition to this river, he therefore came prepared with a plan. Up the tree he went. Perched himself on a branch. The fish faded off. He lit his cigarette. Gradually, the fish came back. Out of his pocket he took a big reel with strong line, a float, and the

thickest gut he could find. He baited his hook with a bunch of maggots. Then, hand-holding his reel, he let his tackle drop down between the branches and foliage into the water. Technically, all worked according to plan, but his ingenuity was not crowned with success. One day, however, I doubt not that he will be more fortunate, but whether, in such event, his tackle will take the direct strain of a dead lift, or whether, in his excitement, he will go toppling off his lofty perch, I do not know—as yet! Yes, the chub is certainly a fish to give good sport!

SPORTING FISHING IN IRELAND

By N. K. ROBERTSON

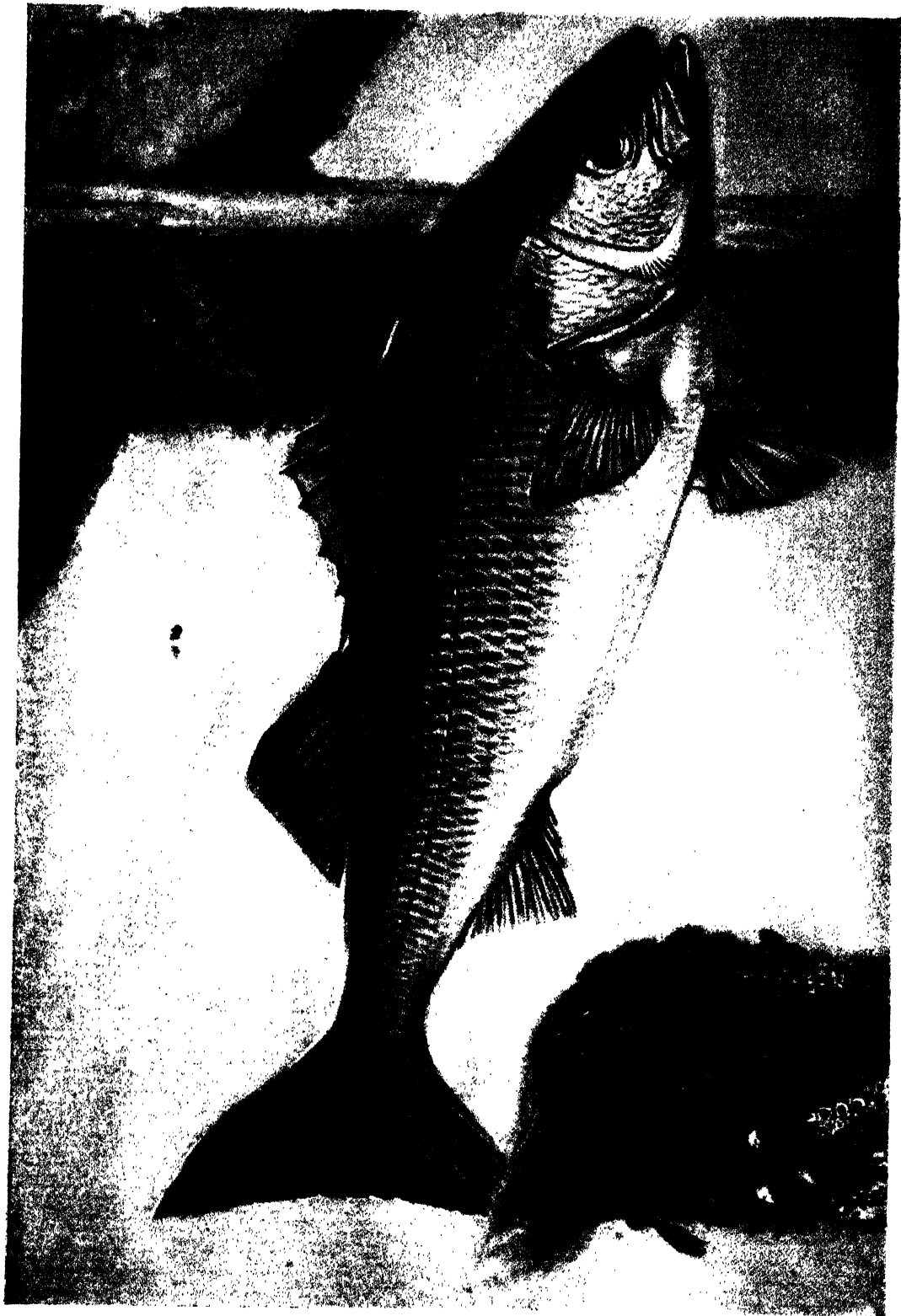


ON considering Ireland as a sporting unit it is better, but not always possible, to ignore the political Pakistan that cuts off six of her counties. Nobly watered she is everywhere rich in some type of game fish, but her list has gaps of some species well known in England and predominant on the English east coast. It was not politics but sterner physical upheavals that made our island break off from the Continental shelf long before England had established her independence. Inland fish of sea origin, which includes the brown trout, are present in abundance, but many continental examples of solely inland habit are missing or have only been introduced recently. The pike and tench came to England from religious motives, but Christian Ireland does not owe the presence of these newcomers to the Normans; instead, the predatory pike is believed to have coincided appropriately with Cromwell, or if earlier with Queen Bess. Their Gaelic name, *Gailliac*, suggests Stranger. The portly carp was introduced by the Great Earl of Cork and is now plentiful.

The varieties important to the angler that are still missing are the roach (except for a few brought as live bait with some dace to the Co. Cork Blackwater), the barbel, the chub, and the grayling. The rudd, probably a handsomer fellow than the roach, flourishes in the limestone areas: so does the bream, while in the great lakes the pike and perch attain to a size and number which have become a byword.

With such natural assets it is not astonishing that Ireland should be attracting the interest of outside sportsmen less fortunately placed. How—they are asking—do we deal with this embarrassment of riches? How much are we protecting or developing what we possess? How far are we proposing to invite visitors to come and share the fun?

First, let us take our own attitude towards the many available varieties of the fishing we possess. Easy generalisations are often unfair, but it would not be an injustice to say that the inhabitants of Ireland are less interested in the sport of fishing than are any other people in Europe. Why this should be so it is difficult to surmise. Possibly where salmon and trout abound, the pot, or its equivalent in cash, matters so much that artistry in capture appears to be a foolish waste of time and opportunity. Fly-fishers are usually found in the professional or semi-professional classes, pike hunters where there are no easily available salmon or trout, and float fishers nowhere. Among "locals" there are a few genuine salmon or trout enthusiasts, but they are outnumbered by their fellows who use the rod only or chiefly as a convenient introduction to more direct action. This is not to imply that we have worse poachers than our neighbours; probably the thug with bomb or lime is better organised elsewhere and the assaults more devastating, but with us, especially in the West, the complaint is general and endemic.



In such a tolerant atmosphere to curb, let alone effect a cure, calls for the biggest effort in the development of salmon and trout fishing, both now and in the future. Beside hatcheries and food betterment are only panaceas.

With salmon and sea-trout there is the further pot incentive of legalised netting, which is an asset in our national economy. In Ireland the value of salmon is viewed from a different economic angle to that obtaining in Britain, which readily consumes both its own and our catch, and still imports what else it can purchase, chilled or in a can. We here do not ourselves eat more than a very small fraction of our annual take; the rest we sell for what we can get, either dead as a visible export, or alive as an invisible export through the attraction to overseas visitors with rods. This economic difference between salmon as food in Britain and as an article for export in Ireland affects our practical official policy. Salmon fishing in Britain is regarded merely as sport for its own nationals, it attracts few visiting strangers; in Ireland it is an obvious asset to sell expensively to enthusiasts from overseas.

Our problem and that of Britain approximates respectively to Canada (an exporting market) and the United States (a consuming market). Canada is so much alive to her position, alongside a rich country with many would-be sportsmen, that the rod value of fish is receiving statistical study with a view to establishing a disinterested public policy.

Apart from this choice of net or rod it is clear that if too many ascending fish are taken by nets, the total stock must deteriorate; but the argument that if very many more salmon were allowed through there would be a proportionate enrichment of future stock is not substantiated by facts. The maximum number of spawners making for efficiency on any river is reached much more quickly than one would imagine. Recent experience suggests that the natural spawning mortality is low but considerable loss is risked at alevin stage; the desired smolt total is usually achieved and the redundant surplus just disappears. It is a commonplace that good and bad spawning years appear to have no obvious relationship to their appropriate returns. This is not to argue that spawning facilities do not matter; they do, but mercifully not as much as one might think. The Billingsgate returns may not be an exact index of results but they are as indicative as any other, and they show that, although so many of the most famous rivers have sadly deteriorated, the total Irish export has *not* dropped during the last forty years. What has fallen is the rod take. The commercial market has had much more than its share. The adverse balance began some eighty years ago. In 1863 the "Queen's gaps," 1/10th in openings in every weir, became statutory. Salmon had to be allowed a fair run upstream. Trap weirs could now be by-passed and every rod man writing at the time expressed the belief that Eldorado was ahead. No one had foreseen that more rapid transport was about to undo what had been won elsewhere. If the ascent up fresh waters had been cleared, less fish were spared to leave the tidal regions. More highly organised packing and icing secured that fish would arrive in good condition from the most remote Irish estuary to the marble slabs of London. Many more expert netters made golden omelettes, even if they did not quite kill the goose.

Where those working the net interests had a sense of responsibility, or where it was not permitted to deplete the stock, the rivers maintained some of their old rod character. Where the pillage was unrestricted the descent was progressive for all forms of take.

Sea-trout also suffer from too much netting; but although the brown are occasionally exploited the trade is not important enough to encourage gross abuses. Its product is mainly sold locally or sometimes sent to Dublin. It is not exported.

If salmon and, to a lesser extent, sea-trout rivers are in a critical state today, what are the prospects for tomorrow? Is there to be still more progressive decline, or are there possibilities for recovery? It is clear that without government interference nothing of constructional significance could arise. Compensation for loss would be too serious for any private body to bear, and yet some loss there must be if any real gain is to be won. In 1939 the Government passed a Fishery Act which, because much of it did not come into effect at once, has received far less attention than it merits. As an instrument it is, unlike most government measures, ahead of public opinion; it was framed on advice based on sound outside experience but its full application is likely to be gradual. For this reason its great significance has hardly yet been realised over here, still less overseas.

Even without the excuse of "emergency" delays, there have been advantages in allowing the changes to be evolutionary rather than revolutionary. Certain useful checks in selling or buying salmon and sea-trout came in at once. Although any provision can be evaded by the adroit, the present restrictions have made it easier to track the origins of suspicious consignments. It is no longer necessary to find a delinquent "taking fish"; even the presence of a net will bring a conviction if it is kept anywhere near a fishing not legally nettable. There is also sensible machinery for dealing with pollution, which in a country like Ireland has no right to exist. These powers have not always been pressed. Difficult times have added to the embarrassments of those who are working essential factories, but the consideration they have received is, I am assured, only to be temporary. Sewage disposal directly into rivers is another abuse for which there is no excuse. Bathers and picnickers suffer alike with fishers. Once the Act is worked fully there should be a big clear up. Many types of discharge may not be immediately lethal to fish, but yet the influence is injurious to river life and the food upon which fish depend. What can safely be released at winter level may be fatal in low water during hot weather. Fishers on the Suir complain that certain discharges create a film on the surface of the water, making it hopeless for greased line fishing. Effluvia from sugar beet is not avoided as it should be. Undoubtedly the great increase in turf digging and the consequent denudation of turf banks in summer has soured many waters, but with fuel shortage as it is this trouble can hardly be resented.

Local angling associations can do much in anticipating unnecessary abuse by an appeal to the Department. Awkward questions can be asked in the Dail to draw attention to any blatant infringement of the law. I know of specific instances where action by the Department has forestalled the establishment of what would have been a gross abuse, hard to abolish, had it once got working.

In Ireland, as elsewhere, works planned for public benefit are the most difficult to modify. Dredger and Bulldozer come offering gifts, including employment. One could not hope to keep them off by waving rods at them. Yet as often as not they injure rather than assist those they intend to serve, where a little thought and better design would have preserved the natural contours and avoided unfortunate reaction.

Electrical development is the monster menace confronting our waterways. The coal shortage is bound to intensify and hasten such activities and the wishful thought that trout fishers will gain where the salmon fishers have lost is unlikely to be justified. Great dislocations of nature rarely do good to river life. An abnormal harvest of trout, such as was experienced at the new Poulaphouca lake, may coincide with the arrival of a rare disease due (it is thought at Poulaphouca) to the equally abnormal number of birds attracted to the area. Sometimes unearned increment may result, but usually it is

unexpected. No one can reasonably complain of the solutions to a great public need that have created the Shannon, the Liffey, and now the Erne hydro-electric works. Inevitably more will follow and we can only ask that where these occur, previous experience will be drawn on to reduce injury to fish life. The Department has been keenly awake to the position on the Erne, but I do not know whether they are sanguine.

Before examining the 1939 Act in more detail, one may well interrupt with a query on how the beneficent measures are to be enforced. Here we touch upon the weak spot. The Act does not provide for any reinforcement to the police. The ordinary police service in any country district already lacks sufficient trained personnel to cover the ground. There is not the man-power to survey, forestall, or to follow up breaches of the law. Quick and likely detection is the most effective deterrent to crime; punishment is less important and promotes sympathisers, especially with poachers. There is a temptation for one short handed to strive for a few shop-window convictions rather than to exercise the vigilance which will prevent attacks on stock from taking place. In criticising, nothing is easier than to tell amusing stories about the Guards (police) themselves helping the enemy or of winking the off-eye. Where the Superintendent is slack it is natural that "incidents" should occur, but it would be fairer to blame a public opinion that is tolerant of such breaches even if not actively co-operative with them.

The main value of the Irish Fishery Act lies in its progressive powers of control of fresh water and estuary fishing, with further machinery for taking over the entire direction of a watershed. Thus it assumes that the Department should do more than keep the ring; it must gradually evolve a disinterested general policy. Critics of the Act have pounced upon the dangers that such responsibilities may create. The bogey of nationalisation has a menacing countenance but, equally, unrestricted operations are leading to ruin. It is just here that the force of the better tourist argument carries most conviction. Through the creation of the Irish Tourist Board (the strategic end of the tactical Irish Tourist Association) fishermen have at last a statutory ally whose interest is identical with their own. Anyone responsible for encouraging visitors knows that attractions matter more than amenities. No one would visit a place simply for its "h. and c." Neither will anyone sit and look at the same scenery for long. The trouble is first to attract people and then to keep them interested. Taking a cross section through various income levels, nothing can do this better than fishing, which is far more universal than golf, its closest rival. Already the I.T.A. know well how quickly a visiting fisherman will learn the difference between a good thing and a flop. Very wisely they are insisting on the "h. and c.," but are also exploring how far our sporting assets may be improved.

Returning to the most valuable of our sporting fish, the salmon, we may accept the fact that for many years we have been spoiling the rods and sparing the nets. Only Government action now could redress the balance and decide on the fair compensation for those dispossessed of a living. Netting as a means of securing the fish for export is known to be an antiquated method. It is uncertain, absorbs unnecessary manpower, and its users are unable to regulate a fair distribution of the daily run. Where the killing hatch has been installed it has answered admirably and in the future some such solution will have to be established on important rivers if the national asset is to be properly achieved.

Even admitting this, we shall have to agree that the day of the hatch alone has not yet arrived and that we cannot sit idly awaiting it. The Act wisely provides first for tomorrow and then for the day after, dealing with netting as it now is. From January 1st,

1948, fresh water netting or trapping of all classes of fish throughout the twenty-six counties has been absolutely prohibited. Unluckily this most excellent Irish legal instrument does not apply to the Six Counties, the Pakistan of the island. In case a cynic is suspicious as to the definition of fresh, it is reassuring to learn that the Departmental interpretation generally favours water which is actually fresh as distinct from saline. Thus a high water bulge is not regarded as tidal if the actual water is fresh and free from seaweed. Not only will many purely fresh water interests disappear but on nearly every important river the upper (so called tidal) nets will cease work. On the Suir, for instance, an expanse of several miles between Carrick up to Clonmel will be cleared and one of our best and most devastated rivers may begin to revive again. The celebrated Blackwater in Co. Cork, the Waterville (*alias* the Currane), the Inney, the Laune at Killarney, the prolific Moy, the Corrib of Galway and too many others to name should all vastly benefit by the restriction. In this the run of sea-trout should gain as much as the salmon.

After this initial and defined action has operated, discretionary powers begin. The Department is enabled to control and restrict the *estuary* nets, where such control is deemed advantageous to the river as a whole. Sometimes it may be a matter of extent, at others a variation of the period allowed. Obviously the intention is not to reduce the total catch so much as to restore the full potential of the run. The powers are not only piecemeal. The Department may take over the control of the whole watershed by vesting in the Minister all the interests affected. Even fishings held by the Land Commission would be ceded but riparian and other owners of rod banks may be given option to hold from the Department, a provision which would avert much confusion and hardship. Boards of Conservators will still exist but Departmental representatives will have the preponderating vote. No machinery will ensure success unless it is worked by the right people, and the existence of power must also imply possibility of abuse. One's views on the future will be coloured by the glasses we select to look through. In Ireland we are used to combining public with private enterprise and I have every hope that the character of those officials who control the Fishery Department, backed by the Tourist Board (as it learns more of the problem and its working), may handle a very tricky situation to the public good. It would be foolish glibly to overlook the risks. Blunders will be there, so (as in all human affairs) will be "influence", and so (unless far more protection is secured) will be the poacher. All these troubles are with us today, but the establishment of greater control promises hopes of order instead of the certainty of chaos. Local sportsmen may have a natural resentment of overseas rivals; but without the incentive created by their arrival we can expect no improvement.

In discussing the 1939 Act we have laid more stress upon the salmon and sea-trout end than upon any other because of its immediate urgency. Actually trout and coarse fish are included in the Government programme. The plan of establishing a 5s. licence for trout fishers has not yet been applied, nor has their representation on Conservancy Boards taken effect. Trout fishing associations are starting in most districts, but their efficiency varies, like everything else in Ireland, with the personality of those in charge. Generally such bodies should do good. They have not yet the closed character of corresponding bodies in more crowded countries, and enough overseas visitors can still be accepted as temporary members. It is, however, probable that some higher proportion of their future membership will have to be reserved for visitors, if help in development and research is to be given by the Tourist Board. Fishing clubs are only another form



PLATE 51

POLLACK (*POLLACHIUS POLLACHICUS*)

GREAT BRITAIN



of private ownership, but they often take more trouble in the improvement and welfare of their property than do private persons. Most brown trout fishing is free, but its exercise is not permitted on many salmon reaches. Such a liberty would amount to a nuisance to those paying high rents for salmon fishing, and the possibilities for abuse are obvious. The hope of getting something really good for nothing at all would only lead to more poor sport. On the big free lakes boat hire works out more expensively than rentals. If our rivers are to be stocked, protected, and cleared, those fishing them will have to pay for the benefits. How much and what to stock is an affair for specialists; action must be based upon research. Biology, limnology, entomology are forbidding words, which practical men are reluctant to use, but it is unwise to ignore them. Without understanding of local geological formation, labour and expense may be futile or harmful. Where things are good or fairly good in the critical balance of natural life, they are best left alone. Birds, eels, weeds, ephemera are all subjects for contention, as delicate to adjudicate as the boundaries of the Balkans. No tabulated solution can be taken from a pigeon-hole. We not only need official research; the field worker who is used to handling and watching fish and bird must help to provide the data. I myself believe that if we cleaned, cleared, and protected the waters we have already, nature would need little extra collaboration from us, although the use of Zoo-plankton may fulfil some of the claims made for it, and the correction of acidity improve the growth of trout.

Having glanced at the form of legislation upon which our salmon fishings are to be shaped, we may hope for better days and for more sport for more people. There is no need to describe how to catch an Irish salmon. The art does not vary much anywhere, but those adventuring on the Shannon (it is pessimistic to believe that Castleconnell is irretrievably lost) should secure much stouter tackle, including hooks, than would serve elsewhere. The knife-edged rocks dividing deep cuts of water need long rods to cover, and to master really heavy fish one has to play them hard. For the grilse run of June with shrimp or greased line one can enjoy lighter stuff and shorter rods. I should, however, be sorry to join issue with even a Shannon grilse, had I only a 5-footer with thread line between me and it. The Galway single hook shrimp has now swum far away from its original waters and is well known. All over the country the yellow or black winged and the shrimp types of fly are reinforcing standard patterns but, while nothing can be proved for or against any kind of lure, it is surely unwise to defy local authority by deliberately flouting advice. If your gillie tells you that—say—a Wilkinson is no good on that particular river and your tactful reply is “Ho! Wait and see!” the chances are that the gillie will not show you the spots where you would be likely to put him in the wrong. Whether for salmon or pike, professionals prefer elaborately mounted natural baits to the artificial. Once you become independent of your professional then you can go your own way. If you are successful it is probable that your prejudices will be promoted to become his principles with the next visitor—but not if he has anything to gain by providing the correct naturals. Dependence upon local advice can be one of the handicaps to fishing; with a boat it is impossible to surmount it. Occasionally the collaboration has led to congenial friendship and mutual regard, and for these delightful exceptions the other disadvantages may readily be forgiven.

It is one of the annoying disadvantages to Irish salmon and sea-trout fishing that if one leaves one district for another the £2 licence one has bought for the first district does not apply in the next one. Each new centre extracts its own 10s. on top of the

original £2 taken out in the first instance. If one crosses the political border there is another £2, payable to the Six Counties. The whole system needs unifying, and less should be charged in certain localities where the chances of either a salmon or a sea-trout are fleeting.

Of Irish trout fishing the most characteristic is the "dapping" on the big limestone lakes. Drifting in boats with a light silk blow-line carrying your dap before you in the breeze, you sit holding out your long rod, sometimes of 19 ft., or a short rod fitting into a removable extender handle. The dap should just float and the two or three mayflies impaled on the long, sharp, bronze wire hook must not be allowed to drown. As with the greased salmon line it is fatal to strike. The dap must be sucked down and the hook tightened when you feel the fish has turned. Except for boatmanship, dapping is an unskilled sport, but it does give opportunity for encounters with really magnificent trout in the highest condition, which will rarely leave the bottom of the deep waters at other times. With the extender handle removed, playing is a more worthy adventure, but I shall always remember a contest with a Lough Sheelin 5-pounder, silver and electric, competing to the last at the end of a mighty rod. Latterly the dry-fly with a spent gnat has been gaining with the *élite*. You watch a cruising fish, taking an ordained arc, and you anticipate his next port of call with your long distance fly just as he is looking for it. By knowing the normal dates of the hatch, later in some lakes than others, you can prolong the season to a full six weeks, ending on Lough Arrow. On some lakes the fishing is free, on others a nominal charge is made by protection societies. Sport is restricted to the number of boats available and fishers normally supply their own auxiliary engines even when they hire boats from the local men. Local accommodation is hard to come by, and caravans and tents sprout up along the shores. If the enthusiasm for this seasonal sensation continues, some further organisation and control will probably have to be sought. Once again opinions differ as to whether eels do or do not spoil the fishing on these lakes. The pro-eelites insist that without competition for bottom feeding, trout will gorge below and will not rise. Latterly the boatmen have been using the long (350 ft. hooked) lines more keenly than ever and they have thus, so say the pro-eelers, largely depleted the yellow eel stock. Those who mistrust the presence of eels as enemies to young trout life also dislike the long lines believing that as many trout are caught on them as eels.

There would seem to be less contested opinions for suspecting the influence of the ubiquitous perch, which abound in all the alkaline lakes. The perch does less harm as predator than as easy money for the questing trout. Fat and appetising, he moves in clearly detected shoals, and if the hatch of perchling happens to be early the trout will be gorged before the mayfly comes out.

After the mayfly season has ended the great lake trout are rarely tempted to betray themselves. An odd lucky troll or a particularly well fashioned daddy may bring reward to some highly knowledgeable local person. As an attraction for fishing visitors, however, the deep lakes have only the short recognised season. To secure a good prolonged fishing season for lake trout, variety in shallows, with weeds appropriate to shrimp and nymph life are needed. Given a favourable alkaline content and shelving verge, sport will generally be had, if the streams supplying the lake are protected during spawning time. Odd exceptions will be found. No one has explained why only Lake Shure on Aran Island is favourable for the propagation of the "Rainbow." They will live and appear to prosper elsewhere but they will not breed. The queer varieties

of "Gillaroo" are also peculiar to certain localities. Those interested in the char will find quite a number of Irish varieties but that sideline is a bit off the normal fishing track.

Good brook trout, worth the trouble of stalking with the dry-fly, often lie smug but alert, away from the recognised haunts. The special information, however, is not very freely passed on. The best that a visitor can do is to look out for a limestone district and then make friends. Undoubtedly the promotion of drainage schemes is the most dangerous enemy to low lying rivers and all that dwell therein. The little tributary to the Shannon, where once I enjoyed many August evenings with a ginger quill, has now a floor resembling the shining sides of a bottle. How redds can survive for the Derg salmon and trout who run up to spawn, one dare not speculate. However essential arterial drainage may be, it is difficult to believe that such drastic unnatural hackings are the only or the wisest solution. There are other less dramatic enemies; trout fishings in the Co. Cork Blackwater system have been disturbed by the increased roach and dace population. The dace from the overtipped tin of forty years ago have flourished much more than the roach and they rove in more rapid waters to the detriment—so I am told—of the resident trout. Where real injury is done local associations should be helped to abate the nuisance by the encouragement of a local market to consume the intruder.

Throughout almost every county in Ireland there is some form of brown trout stream. In acid districts the fish are small, but there, emigrants are more likely to be driven to seek their fortunes away from home and to return in silver glory as sea-trout. Although not a distinct species, the sea-trout is inclined to be bred from like parents and to follow marked seasonal calls. Why some should stay away for longer absences than others is among the mysteries of such types of migrant, but it is certain that big sea-trout are more apt to be found in some districts than in others. Since they eat freely in fresh water it is not astonishing that bigger chaps are commoner in the non-acid lakes, admittedly favourable to rapid development. The Irish sea-trout appears to be less sought for at night than are his cousins in Devonshire and elsewhere. If a visitor feels independent enough to forgo local advice over the taking of salmon, he would be rash not to seek what he could learn of sea-trout from the oldest inhabitant. By this I do not necessarily mean the professional; let him find out at the bar of his hotel the name of the best local "killer" and then devote his cunning to tracking him down. After that—if he had rented a bit of water or hired a rod—let him offer the old hand a couple of "days." It will be worth it. Knowledge of time and place and the right lure all together are not to be gleaned by oneself alone in a few weeks in strange waters. Although a spate is largely a fluke moment yet, even then, local fluctuations need understanding, if they are to be properly exploited.

While granting that Irish salmon and trout fishing can be improved, it is doubtful if these two forms of sport combined could be so much increased as to satisfy another 35 per cent of visitors; say 50 per cent and the limit will certainly be reached. I have said to *satisfy*, because only a limited number of passing visitors who now come without special local knowledge, expecting marvellous sport, go away in a satisfied condition. Most of them will give you figures written on the back of an envelope telling what each trout has cost—per oz.—without drinks. Admittedly a few exceptionally intelligent or favoured people are more fortunate. The I.T.B. at the constructive end and the I.T.A. at the advice end are pledged to amend matters; local associations are accepting and preparing to assist more temporary members, and our waters are paved with good intentions. Some at least will materialise and visitors who have genuine complaints

due to misrepresentation will only help our cause if they voice them—audibly. Only let it never be forgotten that any fish with a pot value is going to cost much more to preserve than one that is of little or no interest to the fishmonger or the housewife. Few of the Irish would touch an eel, but the eel has an export value and his mass capture is a vested interest. Fortunately he does not rank as a sporting fish. Pike and perch are excellent eating to the discerning, but they have a low market value; while this position persists (it is already weakening with the perch who are now being canned) is the moment for the rod man interested in the sport they offer to visit Ireland.

The character of the rock formation (roughly whether the water is hard or soft) dominates the disposition of coarse fish areas. Geological maps give so much detailed information that a layman may be excused for blinking at the colour blotches and deciding that the palette needs translation by an expert. Actually it is well to remember that soil and water themselves are not quite so easily defined and pigeon-holed. Many factors, like the minute presence of minerals, temperature variation, humidity and sunshine, can set up as easily as they can upset the apple cart. Still if one takes a general view of the country, one will find that while salmon and sea-trout may provide good sport in acid areas, brown trout will be plentiful but small. Eels will be present but smaller than their neighbours in hard waters, and the same argument applies to pike. There are very few pike in the granite regions of Wicklow and Wexford, but quite a slight local shift towards higher alkalinity in a river bed will produce an immediate change. An acid flow from a bog can be neutralised very rapidly if the right rock formation is there, especially if the current is not too rapid. Pockets of minerals and unsuspected factors will create different conditions within a few yards. Such contrasts are well known to a gardener, who will point to some specimen that has unexpectedly "done" well or badly. Such variations do not affect the general survey. Among small fry, the minnow will thrive in acid regions but the stickle-back, still as happy in the estuary as he is in fresh water, insists on alkalinity. At one time it was assumed that all these reactions to hard or soft water were due to the quality of food produced by the contrasting beds. Today this is regarded as at least an open question. It is possible that the acid water has a direct effect upon the condition of the fish apart from the influence upon its food. Salmon which are non-feeders in fresh water are peculiarly sensitive to acidity. In a sour spate they may be present in abundance, yet they will spurn any inducement offered by the angler. Thus while visitors should be warned of what is likely to occur in clearly defined areas they should not rule out the hope of pleasant "impossibilities;" the influence of colder weather may unexpectedly reduce the nuisance of an acid flow.

Although a pike hunter living in Wicklow or Wexford may occasionally get results, a visitor should prefer the recognised centres. The float men should ignore any but the definite limestone districts (the places where he needs bath softeners); coarse fish will only prosper in such. To an Englishman used to sitting elbow to elbow and using a keep-net ours is virgin water. Were he to declare the possession of a keep-net to an Irish Customs official he would risk being arrested as a dangerous alien, in possession of a secret weapon, or be interned as a harmless lunatic. Thus while visitors looking for salmon and trout may be told that we are going to improve our assets, the man who comes after pike, perch, bream or rudd is immediately confronted with unlimited abundance and next to no competition. Though a keep-net has its use for holding fish too small to keep.

Most of the central plain of Ireland, with long tentacles, running south, west and

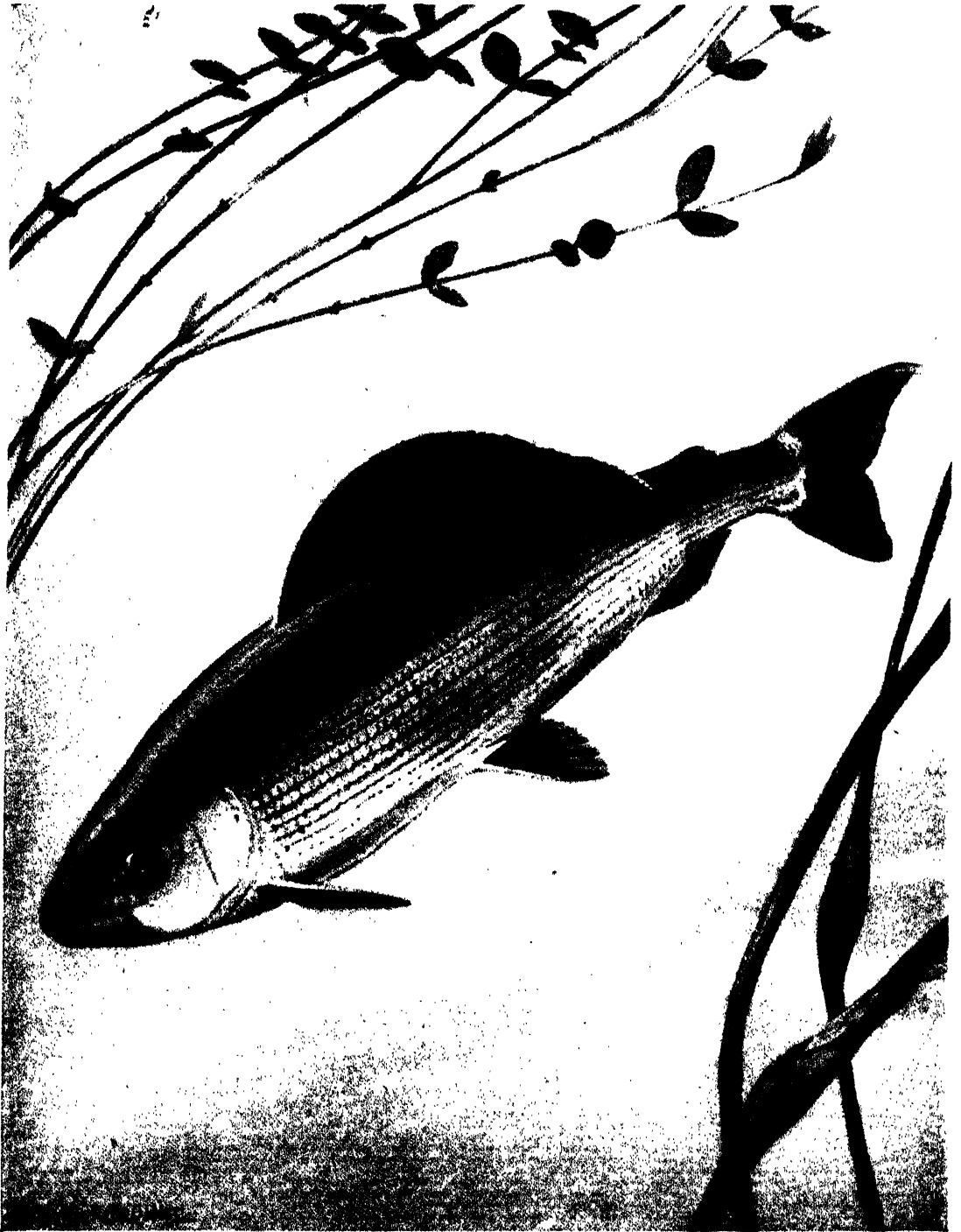


PLATE 53

GRAYLING (*THYMALLUS THYMALLUS*)

GREAT BRITAIN

north are limestone in character. The watersheds of the Shannon, Co. Cork Blackwater, Suir, Barrow, Moy, and Erne are all alkaline. Moreover, the notice "Fishing Preserved" does not block the progress of the pike and coarse fish hunter. Anyone ready to catch what only molest or compete with young stock is a welcome friend. Admittedly the pike fisher would not be allowed to practise his arts with the same devices that might appeal to a salmon, where present. This would be his only limitation, and the same would apply to the man with fine spinning tackle for perch. This restriction would seldom interfere, but it must be recorded. Sometimes in England when one hears the laments of fly-fishers with nowhere to go, one marvels that there should not be more big pike hunters among those who like a tough fighter, and more float fishers among specialists who seek the finest tackle and the most delicate sense of touch. In Ireland the greatest hindrance which the newcomer would have to face is the blank ignorance of the local population. Hardly a schoolboy here would bother to fish for a bream or a rudd. "Them? What would anyone want with them?" A pike, if very big, is slightly more respected, and a perch vaguely disliked for his prickles; he is not eaten.

The coarse-fish visitor, then, would come as a pioneer to sniff out the best pitch. In technique, I doubt that, except for knowledge of weed formation, any of us have anything we could teach him, and he might find interesting varieties of local approach for himself. Mr. C. E. R. Sinclair's recent book should be a useful introduction to Irishmen as well as to visitors.*

The pike hunter would be differently placed, as in the best districts, where big ones prevail, there are quite a few local experts. These are not enough to create serious competition, but they would provide sources for local advice. Pike seasons here are as elsewhere, with November as the apex and March as poor. The apparent good day, with wind and temperature as one wants them, does not always mean the taking day. The gluttonous moment must be watched for and seized upon. Where salmon and trout fishing is indifferent there will be much more pike knowledge available from the boatmen. Those in the West are reputed to be keener than are those on the Shannon, where trolling is far more common. Friends who have fished the Shannon, however, assure me that if there are not so many first-rate men, there should be enough of excellent experience to train more with good muscles to move the heavy boat; with enthusiasm as inspiration, a local boatman should soon learn where to take his passenger. On the Shannon trolling is probably still the best way to skim the long weed beds, extending for miles. With a couple of rods out and moving deftly alongside the lie, one can better cover the defined area thus than by casting.

In the Western lakes spinning is much more freely practised. There the presence of known pike pockets localises the spots. Fishers carefully study the feeding depths in these pockets, as they vary with the weed growth, and then plan their tactics accordingly. The rival schools of big baits for the big ones or light tackles for all, make for interesting contrast; big ones are certainly more difficult to arm for hooking. I have known where a 4-lb. pike when being played was seized by a bigger one and held until the gaff was reached. They rarely hold on the last second too long. On the Shannon eels' tails are beautifully man-tailored for a troll and will survive almost anything except a pike's mouth. Curiously, pike do not eat eels, but the spinning tail behaves like a fish. Natural fish, including large mackerel and jack pike, are used by the Big Baiters. Artificial wagtails, home-made and equipped with a fierce array of hooks, are popular spinners and

* *Coarse Fishing in Ireland*, by C. E. R. Sinclair. H. F. & I. Witherby Ltd. 10/6.

are often made out of old inner tubing. Even if he preferred his own favourite, a visiting sportsman would probably profit if he were to try one of these contraptions and then tell his boatman that he would like to see it kill. He would at once be escorted to the most hopeful lie. Bait casters again seem divided between spin or wobble, plugs (jointed in the middle) display their versatility, and Norwegian spoons, long and heavy, are carefully selected for the special act on the programme. Threadline outfits are increasingly popular, especially for shore fishing on the smaller lakes and in boats—all this wide choice of type encourages thought and experiment. People who prefer to escape the expense and bondage of a boat can cast from the shore of lake, canal or river, but they will have first to study their terrain. In more confined waters, the inmates may not tend to run quite so big, but the fishing is probably more diversified and interesting. Judging by the number of pike which succumb when we are fishing for their betters on the Slaney, I imagine the wooden devon, now used so much for salmon, should be most useful, especially where weeds abound. Painted red and gold or red and silver, he should fascinate. In the hot, still days of summer live baiting may be the only way of getting rid of a nuisance—clearly it is not sport. The method is always slightly repellent even if one tells the victim that he is a martyr to Denazification and that his own sacrifice may save the life of his *fiancée*. Frogs and little fish, cast with a couple of corks on the line, will rarely be resisted, and they can be worked amongst difficult weeds. I have never seen the English dodge of letting a bladder blow a bait across a pond, but this again is Denazification, not fishing. Still more so must be the old Irish device of tying the bait to the leg of a grey goose, liberated on the far shore and told to return home. I am informed that a good goose will play out a 20-pounder. But such dramatic struggles are not for the queasy.

It was not until I began visiting the available centres that I realised quite how much watered our island is. Since intending visitors will understand it even less clearly, I have had a map prepared featuring the main waterways and main centres only. It should serve as a convenient peg on which to attach particularised information. Both for the map outline and many of the details that follow I am indebted to the Irish Tourist Association. Their little Guide to Angling and Golf (obtainable from their Office at 14, Upper O'Connell Street, Dublin) has been carefully compiled and, which is most helpful, gives the names and addresses of all district fishery offices and private associations. From the latter, visitors can generally acquire temporary membership and always advice. The Guide attempts so much within its scope that a stranger will not always find it easy to extract the important from the comparatively irrelevant, but its full list of place names and waters makes it valuable for reference if one is following up another introduction.

Its definition of "free" trout sometimes needs qualifying. It is applied to many salmon rivers where none but those paying rents for salmon are allowed. There are also rivers running through private grounds where any casual "right" would be contested. All "free" fishers must respect the privilege of walking on another man's land and of crossing his fences. The present position is curiously undefined and only works by the courtesy of the riparian owners. Readers from outside Ireland need reminding that over here white trout are always *sea trout* and peal are *grilse*, not sea trout, as they are sometimes known in Devon. Moreover, the visitor may find that more cynical Irish residents do not share the optimism of the compilers that "the Irish poacher is completely extinct".

It is good to know that the Department (from 4, Kildare Place, Dublin) has reissued

its excellent and much fuller book *The Angler's Guide*; and it would only be repeating or anticipating to quote from it. One feels some caution in accepting even figures supplied to the Department from the various local centres; these may have been seen through rosy and slightly magnifying lens. So much depends upon whether those supplying (should be) authoritative "facts" happen to be letting or preparing for probate. Salmon fishing can hardly be included helpfully in a cursory survey here. Nearly all worth having are owned or let privately. Some are held by hotels and short time tenancies are available, as described in the I.T.A. Guide. The Ballinahinch and Recess Fisheries in Connemara controlled by the Irish Tourist Board may, if they prosper, lead to further developments. At the moment, however, the wisest course for the intending visitor is to take the advice of someone intimate with the localities and personalities of the district he wishes to explore.

I do not propose to do more than take the reader quickly round Ireland, pointing out, as we make our circular tour, the main waterways* and the centres. We shall not stress the salmon rivers, which are not for the tourist who is only passing along, but focus our attention on other types of available sporting fish. Many excellent opportunities will be overlooked and others perhaps over-accentuated because by necessity so much of what is suggested has to be at second-hand. If anyone, however, decides to select a centre from what he has read here and then puts himself into touch with the local angling association, he should not be far out in learning the opportunities and limitations of the regions that attract him.

Arrived in Dublin the visitor may wish to operate locally; the district roughly includes the neighbouring counties of Wicklow, Kildare, and Meath. He should certainly seek advice from the Dublin Trout Anglers' Association, as they and kindred bodies actually own many of the worthwhile local rights. The Rivers Liffey, Tolka, Delvin and Avoca, and the new Poulaphouca lakes are all within easy reach. Besides trout there are pike in Lower Poulaphouca and rudd and bream abound in the canals. For these, Newbridge would be a useful base. The district contains both brown and sea trout but, with the many local sportsmen of a city anxious to exploit their opportunities, a stranger should have modest aspirations and, if he can do so, push farther afield. Turning south: the Wexford district is centred at Enniscorthy where the Slaney becomes tidal, and is not sufficiently important to draw outsiders who cannot enjoy the delightful salmon rights. The soil is acid, brown trout small, and coarse fish are not present, except where there happens to be sufficient free alkalinity to accommodate some pike. Later, when reviewing sea fishing, we shall return to Kilmore Harbour and its quite exceptional potentialities for game sea fish.

The Waterford district includes tracts of Kildare, Tipperary, Kilkenny, Carlow, and Leix, since the great Rivers Suir, Nore, and Barrow have their joint estuaries in the bay that forms her harbour. How far the three big rivers will regain their old reputations for salmon under departmental reform is not for us to predict, but it is certain that arterial drainage, especially to the Barrow, has destroyed much of the trout fishing. These regions have a favourable alkalinity for fish, and the correspondingly gentle gradients that generally correspond with this type of geological conformation. There are reaches containing infinitely cunning large brown trout, only to be approached with the dry-fly; some are club held and preserved, others (gratis) are to be discovered by the well mannered, tactful, industrious, and astute. All types of coarse fish display unreserved

* "Waterways" is used in its general and not its navigable sense.

exhibitionism in the clear waters of this extensive district; as well as lurking in the turgid repose of the weedy canals. Family parties of urban disposition could usefully book rooms in the towns of the central plain, off the scenic track of other visitors. From Monastervan and the like, day expeditions to canals could be made by bicycle, and cinemas enjoyed in the evenings.

Cork is a huge area and should be subdivided into the Blackwater section, with centres at Lismore and Mallow; the Lee, Cork and Macroom; the Bandon at Bandon; and the many small rivers and lakes concentrated around Skibbereen. Again private salmon reaches predominate but unless the Lee and many of the smaller rivers regain their lost prosperity, it is probable that trout and coarse fish will have a richer gross total to offer outsiders. Coarse fish can do so much harm to rivers containing trout that the more people that can be tempted to join in their removal the better. Co. Cork varies in the character of its rock formation. The Blackwater starts in bog, but lower down has a limestone floor. The Lee, Bride, and Funcheon are alkaline but, west of Bandon, acidity begins and in the Rivers Argideen and Ilen there are only small brown but good sea-trout. Coarse fish are not present. Lough Inchigeela, drained by the Lee, contains many coarse fish and a lusty pike population.

In Kerry the rock formation is again generally unfavourable to coarse fish, and there are no pike, although the river and lake beds are often neutralised by local changes of bed where bigger brown trout prosper. Where the indigenous arbutus fruits, as it does in many regions, one can be sure that the subsoil is not sour. Fishing on nearly all the big lakes of Ireland is free, but where the same applies to the streams feeding them or the rivers draining them, the ascendant salmon and sea-trout risk many enemies (not yet extinct); and the spawning beds alike suffer. The deterioration at Killarney amply demonstrates the impossibility of maintaining free facilities with the upkeep of a good stock. Let us hope that the provisions coming into operation against fresh water netting in 1948 may help to restore the Laune, the Kenmare, and the Inny, and so bring back mislaid glories to the Kingdom of Kerry, a climax only possible if preservation is to be achieved locally. Such a restoration would be specially welcome to short time visitors, as here there are exceptional opportunities for securing day rentals on salmon waters. Centres such as Killarney, Waterville, Kenmare, and Tralee are well organised, for boats and gillies. At Waterville alone there are 46 square miles of lakes holding salmon, sea, and brown trout, extending over a fairly long season from spring to autumn.

Limerick is the solar plexus of the whole Shannon system, which starts at Lough Allen in Leitrim and branches through central Ireland; there the Electricity Supply Board maintains its fishing headquarters, and from there future development will originate. Although draining much bog land, the Shannon has a persistent limestone bed, and its hard bracing waters encourage the growth of exceptionally large fish. Pike and eels are out-size, and perch and bream not only have a generous girth but keep up a fighting disposition worthy of the best of their type.

Starting from the tributaries on the left bank, below the tail-race of the works, the Feale, Deal, and Maigue profit by the netting control exercised since 1940 in the estuary by the "E.S.B." But, conversely, any change that tends to equalise a river's flow to the sea is likely to reduce that "gradient of salinity" which encourages fish to leave the ocean for home. Adare is the centre for the Maigue and from there a visitor can learn how best to secure permission to fish this excellent salmon and trout river, where the

dry-fly is successfully employed. The Mulcair, above the tail-race but entering the old river below the dam, is renowned for its grilse run but fishes late. The Castleconnell salmon fishing, 6 miles of two banks, is let out by the Board on lease. Five exceptionally dry springs followed the reorganisation in 1940; the consequent impossibility of adding to the statutory minimum flow of the old river (if indeed the minimum was retained), has spoilt the original hopes of those who believed that much might still be spared from the wreck due to the installation. It is too soon to be entirely pessimistic; recently a fine smolt emigration has been passing through the barge lock from the upper beds. With more favourable spring water the grilse run should be good, and the hope of an occasional 40-pounder may yet provide inducements for those whose top notch has been inside the "twenties." It always takes years for a new rhythm to stabilise, and it is hard to believe that any stretch of water that looks as inviting as Castleconnell, will not by itself evolve an appropriate inducement to fish. Fishing here is restricted to those holding salmon licences; practically no sea-trout mount the main river, although they are fond of the lower tributaries. The huge brown trout of the big lakes are normally bad risers, but in Lough Derg there is a good rise to mayfly in mid-May, as well as openings for the artificial green drake and spent gnat. For the rest of the year the two hundred miles of Shannon is limited to pike and coarse fish. The autumn run of salmon, grilse and trout that used to invade the tributaries above Derg almost disappeared when the level of the lake rose, causing siltage, which partially blocked the entrances into the rivers, thus delaying the movement of the fish. Latterly it is hoped that a change in the channels is operating, and that the earlier run may revive. Meanwhile, as we have noted, new enemies to these unlucky rivers have crashed their way in, with dredgers working at their upper and middle reaches.

Crossing to the right bank, the Suck (in Roscommon and Galway) has long lost its reputation for salmon, but it holds some large trout and, like the rest of the system, abundant coarse fish. Indeed, the presence of these latter recurs like a theme song in the saga of Irish limestone waters. The rich embarrassment of the stock may be the answer to why Irishmen are uninterested in their capture. Even tench are added to the Shannon census.

The deep lakes of Longford and Roscommon, or Cavan and Westmeath (near Mullingar) are part of the Shannon family. The big trout they embosom behave like their fellows in Derg, and are only interested in the mayfly. These exciting weeks can be stretched to over six if one follows the hatch from its earliest beginnings in Derg to its disappearance in Loughs Arrow and Gara. A small fishing charge is made through local preservation societies, who assist in maintaining the stock. When the mayfly is off, a daddy or grasshopper may surprise an odd fellow into action, or a troll winkle out a bored fish from the sulky floor.

The Fergus in Clare is also part of the Shannon and the string of lakes which it drains forms a distinct minor system, worked from Corofin. Lough Inchiquin in particular has grand trout, and the region round Lisdoonvarna is full of fish, including what we have called the Coarse Theme Song.

Galway, grey and historic, guards the entrance to Corrib river leading to the sea from the Lough. This huge lake (centre Oughterard) contains a better rising type of trout than are cajoled from the sulky bottoms of the Shannon lakes. Even so, they can be dour enough, especially when cannibal fare is freely come by. The movement to net (and can?) the redundant perch will, perhaps, limit the bottom gluttony of big trout and

force them to gaze upwards. At the same time, it is believed that the reduction of the perch will give a better chance to smolt and parr survival. Lough Mask (reached from Leenane) is only just smaller than Corrib. These two lakes, with Lough Conn, are probably the best known regions for really big pike in these islands. The tract of Galway called Connemara (Clifden, Ballinahinch, Costello, Maam) has, like Kerry, an acid rock formation. Pike and coarse fish are not present and brown trout are small. Sea-trout and salmon are plentiful but much of the fishing is privately held and visitors should find out the local position before they make their plans or choose their hotels. It is interesting to follow how much the geological formations of Galway, Mayo, and Sligo may vary within short distances, altering the seasonal take of salmon and the development of the brown trout. Even the spate harvests, on which most of the small rivers of these districts rely, are affected if acidity prevails.

Coming to Co. Mayo, the Moy watershed, with a catchment area of eight hundred square miles, produces the richest stock of salmon in any Irish river today. Here trout fishing during April is vetoed in the interest of descending smolts. The lower end is reached from Ballina and the chain of well boated lakes, east and south, hold yet more pike.

For the energetic what opening can beat the Moy estuary in June? It embraces a large area, and Irish angling rivals are then apt to be drawn to the dapping lakes. With light tackle (aluminium spoons or long fly lures) one can expect not only the freshest sea-trout but bass, as well as the bonniest fighter of them all, the mackerel. Usually he is asked to carry a monstrous plummet and pull against a handline. Try him on a light rod, and although he rarely exceeds a pound and a half in weight, his dynamics prove him to be, what his stripes confirm, the tiger cub of minor fish. There are other estuaries besides the Moy awaiting those of tidal gumption, where every hour of the twenty-four may yield its rewarding minute.

Castlebar makes an excellent centre for other sea-trout lakes and rivers, while Crossmolina and Pontoon serve the borders of Conn, farther from Ballina. Apart from holding the (official) pike record—a modest 53 lbs. compared with far higher unofficial legendary monsters—Conn is frequented by the sporting gillaroo, as well as by normal trout and salmon. It would be difficult to imagine any area richer in fishing opportunities than this western tract of Connaught. Although many of the smaller lakes and rivers are in private hands, short term leasings are often available from agencies at Newport, Bangor and Mallaranny.

Sligo and Leitrim are chiefly noted for Lough Gill, some of which fishing is free. The local anglers' association owns much of the available fishing in other lakes and rivers. Ballisodare makes a useful centre. Nearby, just above Lough Allen (centre Carrick-on-Shannon), the Shannon has its source, turning its back on Lough Gill and the sea for its long south-western journey.

South Donegal is dominated by the Erne (Ballyshannon), another large and important system, once one of the finest large salmon and trout rivers anywhere. How far and in what way it will survive its electric harness no one can surmise, but that its character will be drastically changed is certain. The only prediction about which one feels confident is the continuation of its immense stock of coarse fish. Bundoran is well known for its strategic position near many local rivers; it is also handy for Lough Melvin, the best lake in Ireland for the gillaroo and the sonaghen.

After leaving South Donegal and its neighbouring County Cavan, alike in their

limestone areas and stocks of coarse fish, one goes to West Donegal and its soft waters free from pike. More small rivers and lakes with numerous salmon and sea-trout are here; Claudy, Lackagh, Gwee Barra (where the season extends to the end of October). With Letterkenny as centre this end of the large county has many hotels offering salmon beats to guests. The Northern Merville Fishery District is largely privately held and shares the Mourne system with the Six Counties. The Mourne indeed leads a cross-bench political life. Starting above Omagh as the Strule, it meets the Glenelly—or Owen Kellew—at Newtownmount Stewart, and is known as the Mourne; after it joins the Finn at Lifford it changes into the tidal Foyle, where recently it has become involved in much litigation with consequent reactions on its waters. Admirers of the delightful ballad, associated with the name Mourne, are warned that the mountains that “roll down to the sea” do so many miles away from the river, north of Dundalk.

Lough Neagh, the largest inland expanse in these islands, is chiefly noted for its stock of palatable pollan (another variety of which inhabit Lough Erne); they form a commercial but unfortunately not a sporting asset. Neagh is a grim, rather menacing lake and except for pike produces little worth catching. Its very large grey trout do not rise until they leave its waters in the autumn. Then at spate time they will mount the tributaries, notably the Ballinderry, where they are taken on very large flies. So unlike is this variety to ordinary trout that they have earned their own name, the dollaghan. The word (according to Mr. T. J. Hanna)* in Gaelic is akin to “lump.” In Ireland all large trout are lumps, and the dollaghan does not belie his title. Six-pounders are not unusual and much bigger ones have been taken. Spate runs have a dramatic quality and cannot be commercialised. Residents who know their district must often enjoy an exciting autumn bonus when the lumps are leavened by the rising water.

Leaving the official north (the geographical north is not in the Six Counties) we return to Southern Ireland and cross the famous Boyne. On this river the salmon reaches are again privately held and the same applies to its tributary, one of the many Blackwaters.

The Rivers Fane and Glyde, accessible from Dundalk, hold good trout. The former is well stocked and preserved by the local association and both contain comparative lumps that respond to a dry-fly. The inland counties of Cavan and Longford possess a series of lakes drained by the Annalee, which is renowned for the dry-fly. Trout fishers encourage the activities of pike hunters to help them in the ceaseless task of Denazification. Virginia, adjacent to Lough Ramor, is being developed as an excellent coarse fish centre and is likely to become popular when its attractions are better known.

In our tour of Ireland we have constantly emphasised the presence of coarse fish, but clearly certain places are more favourably adapted for assault by bank float fishers than are others. I understand that Virginia and Cootehill, on the Cavan lakes, are exceptionally convenient for bream and rudd. The same applies to Corofin and to Carrick-on-Shannon. No doubt many more places will exploit their qualities, should demand arise, but until more Irishmen themselves learn to appreciate this form of sport, progress can only be slow in making their assets known to visitors. If some pioneer Englishmen would come across, prospect, and explain their art, nothing could be more to our mutual advantage. They would be able to tell us if any novel technique were needed here to suit the special habits of our fish or to master particular local circumstances. If this branch of sport is to be explored and marketed as it should be, the Irish tackle

* *Fly Fishing in Ireland.* Witherby.

makers will hasten to equip their shops with appropriate tackle and gear, and—we may hope—advice as well.

The neglect of coarse fishing, curiously enough, is not shared by the Irish deep sea fishing, which has achieved a reputation extending far beyond our own or even English shores. "Fans" from many countries assemble to enjoy the really notable opportunities offered at the best centres, such as Ballycotton in Co. Cork, where very large fighting fish will try the skill and endurance of those fortunate enough to hook them.

The facilities are well organised and good boats and boatmen are to be secured by enthusiasts careful to book well in advance. The Ballycotton area is extensive; the depths are right and the tides easy; with a well rocked floor, bass, conger, tope, and large halibut are attracted to the rendezvous. Bass are fitful creatures, in some places unwilling for the fly, but both off the Kerry and the Wexford coasts capital sport may be had surf casting for these fighting sea perch. Derrynane and Valentia (Kerry) are equipped with motor boats and are noted for their big fish. Waterville, convenient to Ballinskelligs Bay, offers extensive fly-fishing from the shore when the shoals of bass come in, and shares this reputation with Glenbeigh. Achill Island, off Mayo, is another western base; here, again, bass take the fly, but the area is even better noted for its stock of sharks. The island holds the exciting record for the largest known to have been caught on a rod.

Turning to the eastern coast, less has been developed, but off Co. Wexford, at Kilmore Harbour, there are many worthwhile fighters and an appropriate base to work from. Convenient to visitors from England, it should build up a reputation equal to any.

Exciting as these heavy fish of the sea must be for those able to engage in them, it is not a sport for the hard-up. Big boats and crews are needed for the breakers outside the harbours, and the man who can only afford to share an open boat with oars must be content with smaller targets. All around the coasts there is a good and varied stock of pollock and suchlike. He who complains that they put up a poor fight should try lighter tackle. Better still, let him make a closer study of the bass and mackerel, so much more obliging off our shores than elsewhere in their readiness to take a fly, or lure, and then tear the line off the reel. Game fish indeed!

Anyone trying a new country for a sporting holiday will want to know how he is likely to be welcomed by the residents. If he comes here he should not be disappointed in the warmth of his reception. It is not all cupboard love; we like making a good impression on strangers and are interested in helping people who are not only passing through but lingering to join in sport. Rogues and parasites may be included in our personnel (are they not elsewhere?) and seasonal employment only is bad for character formation. One of the advantages of a more constructive angling policy would be the reduction of this unpleasant by-product of tourism. The patronising type of visitor will quickly make an audience to minister to his weakness; but the one who comes to us with uninhibited goodwill will have it everywhere returned with interest.



PLATE 54

HUCHEN (*HUCHO HUCHO*)

EUROPE

PART FOUR

AUSTRALIA—THE ANGLER'S PARADISE

By T. C. ROUGHLEY, B.Sc.



THE future of Australian fishing is no longer problematical . . . Australia has fish and fishing which will dwarf all the rest known in the world today . . . I stake my reputation that Australia will yield the most incredible and magnificent big game fish of known and unknown species that the fishing world has ever recorded."

These are not the words of an Australian whose judgment has perhaps been warped by his enthusiasm, whose perspective has perhaps been distorted by patriotic fervour. They emanate from an American angler with nothing whatever to gain by uttering them. They are the considered judgment of one of the most experienced and widely travelled anglers who ever wet a line. In these words Zane Grey described Australian big game fishing in his book *An American Angler in Australia*.

But here is the strange part of the story. Until the year 1933 Australian big game angling was confined to sharks, and although marlin and broadbill swordfish were known to exist off the coast, for on odd occasions one would be washed up on the beaches, they were thought to be rare fish in our waters, and they were never fished for.

On 2nd February, 1933, Mr Roy Smith, fishing off Montague Island on the south coast of New South Wales, landed a black marlin weighing 262 lbs. This was actually the first marlin to be caught with rod and line in Australian waters. Was it a lone fish? If one can be caught there must surely be others, and so lines were rigged in preparation for the following "season." It was presumed, of course, that February was the season for the sole reason that the first marlin was taken in that month. On the 12th February, 1934, Mr W. C. Wentworth landed, also off Montague Island, a striped marlin. This was followed by others, and during a fortnight's fishing from Bermagui one party alone sighted over fifty marlin and had seventeen strikes, several being brought to gaff.

Roy Smith's marlin was not an isolated fish!

The anglers' ranks were increased the following year, more and more fish being landed; and incidentally a record was established which appears likely to stand for a long time—nine striped marlin were landed by two anglers in one boat on 5th March, 1935! Thus, within two years of the capture of the first marlin, a world's record was established. This remarkable feat not only stimulated Australian anglers to join the small but enthusiastic band, but the news of this prolific fishery began to trickle abroad.

It reached Zane Grey's ears.

Angling was in Zane Grey's blood. He had fished all the waters of the world where big game fish were to be found. And here was something that gave promise of bigger things than even he had ever heard of. Zane Grey was thoroughly teased, and he found

the bait irresistible. He landed on our shores in January, 1936, determined to test for himself the angling resources of Australian waters. Day after day he brought in his quota; today, black marlin; tomorrow, striped marlin; then sharks—mako, hammerhead, grey nurse, whaler and, for complete variety, a rare thresher shark, bronze green in colour, the first to be captured in Australian waters. Zane Grey began his fishing at Bermagui; he was directed there because it was those waters that had yielded most marlin, but he longed to explore other grounds and so he went north—and landed equally good catches.

Zane Grey had never had such fishing and his praise was unstinted.

During 1936, from January to the middle of March, close on a hundred marlin were landed on the south coast of New South Wales. And they were sought by only a handful of anglers. Truly magnificent fishing.

The season, at first thought to be confined to February, now embraced January and March. The season continued to expand, for marlin were captured in December, 1936, and one lone angler, more imaginative perhaps than the rest, caught one in April, 1937, and saw greater numbers than during any previous month. So then the season extended from December to April. I see no reason why these fish should not be found on our coast all the year round, but most fishing will probably be done in the summer months, for angling in the depth of winter, comparatively mild though it is, is far less congenial than during the warmth of summer, when the sea breeze provides a refreshing coolness often times unobtainable on land.

The 1937 season saw several distinguished anglers attracted to our shores. And none was disappointed. Dr Richard Sutton, renowned traveller and big game angler, who roams far and wide to fish when he is not teaching medicine at Kansas University, U.S.A., summed up Australian angling in these words:—

“Australia is assuredly destined to become the world’s fishing ground. My wife and I fish and shoot in all parts of the world, but there is no place that has captured our hearts more than Australia—the land of big game fish, in quality and quantity.”

Sir Harry Lauder, after what he described as one of the greatest holidays of his life, left Australia with this message:—

“I cannot speak too highly concerning your deep sea fishing at Bermagui. It was a wonderful occasion and my holiday was completed in royal fashion.

“I thoroughly enjoyed my fishing, both in respect of my successful fight with a striped marlin, the gamest fighter of the sea, as well as the wonderful small game fishing with which Bermagui abounds.

“Your boatmen are grand fellows, and make the angler feel completely safe and confident at all times. I shall always remember you all for your kindness and look forward to visiting you again soon.”

Initially, it was the ambition of every angler to catch a marlin; it is now the ambition of every angler to catch a larger marlin than has been caught previously. In a fishery so prolific but so young records topple down each season.

In January, 1936, Zane Grey established a record with a black marlin weighing 480 lbs.; this fish held the record for just a year, for in January, 1937, Mr J. R. Porter, of Melbourne, landed on a 36-thread line a black marlin which weighed 672 lbs. In 1940 Mr C. A. B. Starling, of Ceylon, fishing with a 39-thread line, landed a black marlin weighing 680 lbs.

In January, 1937, Mr G. M. Nathan, of Burradoo, New South Wales, caught a

striped marlin that weighed 305 lbs. On 27th February, 1938, Mrs A. W. Sams caught a striped marlin weighing 330 lbs., off Ulladulla, New South Wales. This is the present Australian record.

But fame awaits the angler who catches the first broadbill swordfish. It will be caught, of course, for we know it inhabits our waters. Indeed, there is little doubt that one or two anglers have had a broadbill on their lines, but they have broken away, and the air has turned blue as the anglers said good-bye. Good-bye? No, au revoir. These fish will come again.

Unlike the marlins, sharks have provided sport for Australian anglers for many years. They have been caught along the whole of the east coast and many battles have been waged with them right at Sydney's front door. There are anglers who derive a greater thrill from the capture of these great sharks than from any other fish in the sea, not excluding the marlin. Who would not feel a thrill of pride as he contemplated 1,000 lbs. of fighting fury brought to gaff; as he gazed on a leering mouth with rows upon rows of vicious teeth lining great, powerful jaws? Who could fail to feel intense satisfaction at ridding the sea of one of its greatest perils?

Fishing in the neighbourhood of Sydney, the tiger shark, grey nurse, and whaler have been the commonest sharks landed, while in more southern waters the hammerhead and mako have predominated.

The honour of capturing the largest shark is keenly sought, and when Zane Grey had tested out the waters of the south coast he came to Sydney to do battle with them. At that time quite a number of sharks had been caught over 800 lbs. in weight, but the 1,000-lb. shark had not yet been landed, the record being a tiger shark weighing 996½ lbs., caught by Mr J. D. Baldwin on 11th March, 1936. This proved to be a short-lived record for Zane Grey a month later caught off Sydney Heads a tiger shark weighing 1,036 lbs. The present record is held by Mr Lyle Bagnard, of the U.S.A., for a tiger shark weighing 1,382 lbs. It was caught off Sydney Heads on the 22nd February, 1939. These are big sharks but their limit has by no means been reached yet. One of these days an angler is going to hook a white shark that will make the world wonder. Now, this white shark is known to grow to a length of over 35 ft., and some monsters have been seen in our waters, several weighing well over 1,000 lbs. having been landed in South Australia, the largest caught on 39-thread line weighing 1,747 lbs.; it was landed at Port Lincoln by Mr E. H. V. Riggs in 1941, while a white shark weighing 1,919 lbs. was landed in South Australian waters a little later in the same year by Mr G. R. Cowell, using a 54-thread line.

The hammerhead varies according to its mood. One day it will fight with a liveliness that will allow the angler little respite, and on another it will appear to forget that it has any weight at all to throw about. The largest hammerhead recorded from the Australian coast weighed 565 lbs.; it was caught off Bermagui by Mr Emil Moorehardt, one of Zane Grey's party.

Of all the sharks on the Australian coast the mako is the most tenacious and spectacular fighter—spectacular because it usually fights at the surface, and in its blind fury will leap high in the air, never crying enough till every ounce of its fighting strength is exhausted. The record mako shark was caught by Mr R. Wild off Sydney Heads; it weighed 690 lbs.

Of the medium game fish the tunny promises some wonderful sport in the near future. Anglers have sought and caught tunny in Australian waters for many years, but it was not until the year 1936 that they began to realise the vastness of the shoals that skirt

the coast. Interest was greatly stimulated by Zane Grey's catch of a yellowfin tunny, or tuna as it is called in America. When this fish was brought in, the local fishermen at Bermagui stated that they had frequently, in the course of their fishing activities, passed through shoals of tunny comprising fish which they estimated must have weighed several hundred pounds, while vast shoals of smaller tunny visit the coast every year. During August, September, and October, they informed us, the waters of the south coast of New South Wales are alive with tunny. So emphatic were these fishermen, so convincingly did they describe these shoals, that several anglers decided to visit Bermagui in the spring in order to investigate the matter for themselves. It is scarcely an exaggeration to say that during this period the waters *were* alive with tunny; from off Shoalhaven River to Eden fishermen reported great shoals, and those anglers who got amongst them reaped a rich harvest. During three weeks from 5th September to 26th September, 286 tunny were taken by eighteen anglers fishing from Bermagui alone; one angler in the course of a few days landed 52, the fish ranging from 25 lbs. to 35 lbs. in weight.

But what of the larger tunny that the fishermen reported with equal emphasis? We have yet much to learn about their location and movements, but at present the evidence would appear to indicate that they shoal farther offshore and only occasionally come into shallower water. On 14th May last, Mr T. A. Bell, of Melbourne, fishing on the north side of Montague Island, struck one of these great tunny, and after a fight lasting an hour and a half, succeeded in landing it. It weighed 238 lbs., was 6 ft. long and had a girth of 4 ft. 2 ins. Some great sport is assured when the anglers get amongst these fish, as they assuredly will in the near future.

Kingfish (called yellowtail in Victoria and elsewhere), on account of their terrific speed through the water, have always provided Australian anglers with great sport, and because of their habit of diving for the cover of rocks where the line is likely to be frayed and cut, they are calculated to tax the skill of the most experienced angler. During May this year, some giants of their tribe gave anglers a great thrill in the picturesque waters of Jervis Bay, New South Wales. So unexpected was the size of the fish that many lines and even rods were broken in a vain endeavour to hold them. The largest caught weighed 63 lbs., but many of greater size than this simply tore their way to freedom. The largest kingfish captured to date was taken by Mr Clive W. Firth; it was caught on a 12-thread line in 1938 and weighed 88 lbs.

Although the most fruitful fishing has so far been obtained in the waters of the southern half of New South Wales, there are many other localities on the Australian coast as yet untried which may, and probably will, compete with these waters in yielding big fish to the anglers' lures. Stimulated by the tales that were filtering through concerning big game fishing in the east, the anglers of Western Australia recently began to look over their own waters, and now tales of some splendid captures are filtering back to us. Tunny, Spanish mackerel, bonito, and albacore are providing great sport, and some big fish are destined to be captured in those waters, for tunny up to 300 lbs. have been netted off Albany, and marlin are known to exist there.

Who can say what the Australian coast may yet yield?

Amongst the lighter game fish the Australian salmon, which, incidentally, is in no way related to the salmon of the northern hemisphere, is the gamest fighter of them all. Although it grows only to a weight of 7 or 8 lbs., on light tackle it provides wonderful sport. It never spares itself, but maddened by the hook in its jaws, it throws itself about in frantic rushes and wild leaps—its fury knows no bounds; indeed, it has no peer in

its class. As a game fish the salmon is a thoroughbred. Moreover, it will rarely be found biting shyly, and its numbers are legion; it is probably the most prevalent fish on the south-eastern Australian coast. Our distinguished visitor, Sir Harry Lauder, revelled amongst the salmon. As a fish would strike and his reel begin to screech, those kindly grey eyes of his would light with the joy of doing battle with an adversary equally as game as his beloved "trout." "It's a g-r-r-a-a-n-d sport," he would exclaim, "and there is no better fishing water in the whole world than Bermagui has right at its front door." The salmon is by no means confined to Bermagui, however, for shoals can usually be located along the whole of the coastline from Sydney to Melbourne.

Here, then, is a range of fish to satisfy the angler's every whim. From a light rod with a 6-cord line to the heaviest gear with 39-cord line, every type of fishing is abundantly catered for. And if the angler cares not for the winter in more southern climes he may sojourn in that unique angling playground, the Great Barrier Reef, where in the winter the days are comfortably warm, but never hot, and the nights cool and exhilarating. In these placid waters, which teem with strange life, he will find angling that will satiate the most ravenous appetite. Whether in the romantic setting of a coral island, or in the picturesque ruggedness of one of the islands of the mainland, the angler is assured of wonderful sport. In a school of Spanish mackerel his cares will fall as a mantle from his shoulders—at least, all his cares except those of angling, for this fish will put his skill to a thorough test. The largest Spanish mackerel recorded from the Great Barrier Reef is said to have weighed 121 lbs.; it was caught by a professional fisherman. The largest caught by an angler with rod and reel, using 36-cord line, weighed 68½ lbs., and on 15-cord line, 62 lbs. Although it may be taken along the edges of the tide rips of the Outer Barrier during the whole of the year, it is during the months from May to October that anglers seek it amongst the islands between the Outer Barrier and the mainland. During May and June it is found in greatest abundance in the southern areas of the reef about the islands of the Bunker and Capricorn Groups; it then moves north and about the middle or the end of June makes its appearance in the Whitsunday Group, where it is usually captured in great numbers till September or October. The average run of the fish weigh from 25 to 35 lbs.

Even surpassing the Spanish mackerel in fighting qualities, but unfortunately far less common, the queenfish, shaped like the mackerel but more closely allied to the kingfish (yellowtail) and trevally, is caught in a similar manner and in similar situations, and, although it grows only to a weight of about 30 lbs., weight for weight it is probably one of the most spectacular, tenacious, and active fighters amongst the game fish of the world; it leaps into the air with great frequency and occasionally, like the marlin, dances over the surface with its tail only in the water. Of this fish Zane Grey wrote the following eulogy:

"The queenfish, a beautiful silvery dolphin-like leaper, is one of the greatest fish I have caught, equal to the gallo, or rooster fish, of the Mexican coast."

The most stubborn fighter of the reef is probably the turrum, a giant trevally that attains a weight of upwards of 70 lbs.; the largest landed with rod and reel with regulation tackle weighing 72 lbs. The average size, however, probably ranges between 20 and 30 lbs. The turrum is not so spectacular as the mackerel or queenfish, but is even more tenacious and more stubborn; it does not waste its energy in frantic leaps but usually sounds and fights deeply, and when a large turrum is hooked its capture is calculated

to try the patience of the most ardent angler, for it tires very slowly. When alive it is an object of great beauty, its iridescent sides flashing like a brilliant sunset.

Other important game fish of the reef are the giant pike, tunny, little tunny, kingfish, albacore, and bonito, while marlin are sometimes landed and are probably more common than is at present realised. The deeper waters beyond the Outer Barrier have yet to be fished for them.

Every year a pilgrimage is made to the Great Barrier Reef by anglers from New South Wales, Victoria and South Australia; every year they return to unfold wonderful tales of their fishing experiences—four Spanish mackerel struck simultaneously and all four fish landed; dour struggles with giant turrum; thrilling encounters with speedy queenfish; with now and again an interlude which provides prolific captures of bottom-dwelling coral fish of handsome form and gorgeous colours.

The Great Barrier Reef holds a wealth of treasures for both anglers and nature lovers.

Such is a brief account of present-day angling in Australian waters. But, prolific as these waters have proved to be in the last few years, the sport is only in its infancy; although in that short space of time with but a mere handful of anglers operating, the fishing has proved to be equal, if not superior, to that offering anywhere else in the world, we scarcely yet know what great fish these waters contain.

During the course of Australia's 150th Anniversary Celebrations in 1938 an angling contest unique in Australia's history was staged; it lasted from 1st January to 23rd April, and scores of Australian anglers and many from overseas gathered together to try their skill against the mightiest of the ocean's denizens, in an effort to win one of the trophies valued in all at £925, including a magnificent prize valued at £500 for the largest game fish (swordfish, marlin or mako shark) caught during the period of the competition.

The competition started slowly, but as time wore on some great catches were recorded. Right to the end the contest remained very open. And, when a final tally was made, it was found that two world's records and three Australian records had been established.

But the competition was not without its surprises. Who, for instance, would have dared suggest at the beginning of the contest that the most coveted trophy valued at £500 would have been won by a woman angler? It was not that the women entrants in the competition lacked the necessary skill, endurance and experience, but rather that they were in such a great minority; they were probably outnumbered by male anglers by at least fifty to one. To Mrs A. W. Sams, of Milton, New South Wales, went the honour of winning this valuable trophy; she achieved it with the capture of a 330-lb. striped marlin, caught off Ulladulla, N.S.W., on 27th February. It was a splendid exhibition of fishing, and Mrs Sams earned the homage of all anglers, for she landed this fish with but 350 yds. of line on her reel. The skill she displayed may perhaps be gauged when it is stated that most anglers, when fishing for marlin, have from 750 to 1,000 yds. of line on their reels, and the marlin, in its initial run, may take out anything from 300 to 400 yds. of line.

Mrs Sams' striped marlin remains as the Australian record, the previous record being held by Mr G. M. Nathan, of Burradoo, N.S.W., with a fish that weighed 305 lbs. Not the least of the surprises of the competition was that a striped marlin should win it at all, for this game fish section included both black marlin and mako sharks, and I venture to say that not one angler in Australia would have picked a striped marlin as the ultimate winner, for both the black marlin and the mako shark grow to a far greater size. Only the following year a black marlin weighing 672 lbs. was landed off Bermagui



WEST INDIES
AUSTRALIA

COBIA (*RHACHYCENTRON CANADUM*)
BLACK KINGFISH

PLATE 55

by Mr J. R. Porter, of Melbourne, and a mako shark weighing 610 lbs. was captured by Mr Ken Wheeler, off Dee Why, Sydney.

The period of the competition proved to be an erratic season for game fish and there can be little doubt that the currents prevailing for much of the time was a contributing cause. Normally the current off the New South Wales coast runs from north to south, but for weeks at a stretch the anglers encountered a strong current from south to north, and the surfers on the New South Wales beaches were frequently forced to leave the water owing to the exceptionally cold water which, right in the middle of summer, washed the coast. Nothing is calculated to influence the movements of migratory fish more than a change of currents.

In spite of this, however, the competition was a great success, and some outstanding catches were recorded. Probably the most notable event was the capture off Bermagui of a tiger shark weighing 1,151 lbs. by Mr T. A. Bell, of Melbourne. This was at that time the largest shark caught anywhere in the world by an angler in accordance with the accepted rules, the previous record being held by Zane Grey with a tiger shark weighing 1,036 lbs., which he caught off Sydney Heads two years previously. Mr Bell for this catch won a handsome trophy valued at £200.

Another catch of great merit was that of a white shark weighing 1,023 lbs. caught by Mr G. R. Cowell at Port Lincoln, near Adelaide. This was at that time a world's record for a shark of that species, but Mr Cowell has since caught several white sharks of greater weight, culminating in the landing of a monster that weighed 1,919 lbs.

In addition to Mrs Sams there was another lady in the person of Mrs Lindsay Myers, of Manila, Philippine Islands, who figured amongst the records. Mrs Myers, fishing in Jervis Bay, N.S.W., landed a thresher shark weighing 405 lbs. which remains to this day an Australian record for a shark of this species. The previous record was held by Mr Errol E. Bullen with a thresher weighing 380 lbs. which he landed off Sydney Heads in 1937.

To Mr C. W. Firth, the Chairman of the Celebrations Angling Committee, went the honour of capturing the largest fish in the light-game class on a 12-thread line. This was a kingfish (yellowtail) weighing 88 lbs., caught off Bermagui. This, too, remains as an Australian and, indeed, a world's record in its class.

The trophy for the greatest aggregate weight of game fish and sharks was won by Mr Errol Bullen, who, during the period of the competition, landed fourteen fish whose total weight was 5,825 lbs. (over 2½ tons) averaging 416 lbs. per fish.

An analysis of the total catches by all entrants in the competition reveals several interesting features, as the following table indicates :

<i>No. of Species</i>	<i>Total Weight</i>	<i>Average Weight</i>
42 striped marlin	9,238 lbs. ..	220 lbs.
40 black marlin	8,387 lbs. ..	210 lbs.
3 mako sharks	698 lbs. ..	233 lbs.
20 tiger sharks	9,993 lbs. ..	500 lbs.
37 hammerhead sharks	11,784 lbs. ..	318 lbs.
22 whaler sharks	7,293 lbs. ..	331 lbs.
7 white sharks	4,492 lbs. ..	642 lbs.
9 grey nurse sharks	2,979 lbs. ..	331 lbs.
1 thresher shark	405 lbs. ..	405 lbs.
<hr/>	<hr/>	<hr/>
181	55,269 lbs.	305 lbs.

55,269 lbs. (over 24½ tons) of game fish and sharks! The landing of such a great

aggregate weight of fish fully justified the competition, even though the season was one in which both game fish and sharks were far less abundant than during any season in the memory of Australian anglers.

The greatest surprise of the competition was the scarcity of large black marlin; as the foregoing table shows, they averaged 10 lbs. less per fish than the striped marlin. This was contrary to all previous Australian experience and is difficult to explain. The unusual scarcity of mako sharks was also unexpected, but when currents are perverse all preconceived calculations are likely to be upset.

Of course, there were many stories told of the big fish that got away. Mr Errol Bullen, then the ace of Australian shark anglers, who had never before taken more than 35 minutes to land a fish (he had sharks of over 900 lbs. to his credit) had one fish on for 11 hours 43 minutes, and it was then almost as full of fight as when it first felt the hook, but it broke away and disappeared in the blue distance. Blue? Yes, the air was blue for miles around.

But the unkindest cut of all was the stranding of a black marlin weighing 1,226 lbs. in Twofold Bay, N.S.W. Tired of waiting for an angler to test his skill it calmly swam ashore to convince the competitors that there were some really big fish to be wrestled with. Perhaps this was one of the fish that really did get away.

The war, of course, led to a virtual cessation of angling in Australian waters, but with a return to peace active fishing has been resumed and an effort made to live up to Zane Grey's contention that Australia has the best big-game angling waters in the world.

ANGLING IN SOUTH AUSTRALIA

Geographical



THIS is not meant to be a geographical survey of South Australia, nor do I wish to attempt a geological description of the State, but in order that the reader may more readily understand the places which will be mentioned later on in this commentary, I intend briefly to give a description of the coastline and also the main rivers of Sunny South Australia.

The title of Sunny South Australia is indeed merited, for during the greater part of the year the climate is one which rivals that of the Mediterranean, and with an average temperature of 63 degrees the weather conditions for angling are generally all that can be desired.

While in the summer hot dusty days are experienced with the temperature over 100 degrees in the shade, these days are few in number, and in the winter, also, the cold and wet spells are out-numbered by the beautiful clear blue skies which follow day after day.

Nothing can mar an angling excursion more than the uncertainty of the weather, and the climate is so reliable that arrangements can be made well in advance, and it is only on very few occasions that these have to be cancelled on account of the inclemency of the weather.

With a coastline of over 2,200 miles, with varied scenery, ranging from sandy dunes to rocky headlands, a large selection of angling is offered both to the big game fisherman and also the seeker after the smaller type of fish.

The general trend of the coast is towards the south-east and the State of South Australia, to suit our purpose may, like Gaul of old, be divided into three parts, viz:—The Great Bight, The Gulfs and the South East; so commencing from Wilson's Bluff on the western border we find the cliffs are nearly perpendicular, attaining a height in places of 250 ft., and so continue for 127 miles until the Head of the Bight is reached.

Continuing in a south-easterly direction the coast becomes very irregular and passing Point Sinclair, a granite headland thrusting out into the ocean, Fowler's Bay is entered which is guarded on the further shore by Point Bell.

The coast now assumes a very tortuous line and crossing Denial Bay in which is situated Nuyt's Archipelago, Point Brown is passed, which with Cape Westall encloses Streaky Bay, a very fine stretch of water giving secure anchorage to big ships in all weathers.

Anxious Bay is next encountered by rounding Cape Radstock and further enclosed in this bay is Venus Bay, almost entirely landlocked. A few miles out to sea lies the Investigator group of islands, with Flinders Island being the most important, and apart from the beauty of the islands they also abound with seals and sea birds of every description.

The names of many of these places on this stretch of the coast are reminiscent of the early explorers of this part of the continent, and such names as Streaky Bay, Coffin's Bay and Avoid Bay are passed until, arriving at Cape Catastrophe (where disaster overtook Captain Flinders and cost him the lives of eight of his crew who were lost in a sudden squall), Thistle Island is left behind and the waters of Spencer Gulf are entered.

This gulf extends inland for approximately 200 miles, and a few miles from Cape Catastrophe lies the beautiful town of Port Lincoln on a landlocked harbour which, apart from the attraction of angling, is an ideal holiday resort.

Port Lincoln can indeed be called the Mecca of big game fishing, for it is from this harbour that most of the big game fishers set out in search of the various types of game fish which are to be caught in these waters.

The coast at this point is very rugged and picturesque and with its many sheltered bays and inlets is an ideal place for an angling holiday.

Forming a rough triangle Spencer Gulf terminates at Port Augusta and towards this town the coast gradually becomes low lying and is composed mostly of marine flats and mangrove swamps, so that Franklin Harbour, situated about midway along the western coast, is almost dry at low tide.

Returning down the eastern side of this gulf the coastal plain continues, and several harbours are passed, the principal ones being Port Pirie, Port Broughton and Wallaroo.

At Hardwicke Bay the coast turns westerly, then becomes very rocky and rugged until Corny Point is reached; changing direction southward Cape Spencer is rounded, and passing between the Althorpe Islands the comparatively calm water of Saint Vincent Gulf is entered.

This gulf runs inland for approximately 100 miles and the shore is principally low-lying so that at Port Wakefield, which is situated at the head of the gulf, there is nothing but mud flats, the town itself being built on a raised beach; continuing down the coast the capital city of Adelaide is reached, which any angler contemplating an angling holiday in South Australia should make his headquarters.

A few miles south of Adelaide the cliffs again take shape and at Port Noarlunga attain a height of 150 ft. Following in a southerly direction Port Willunga, Second Valley and Rapid Bay are passed until at Cape Jervis the coastline takes an abrupt turn to the east.

About 10 miles out to sea across Backstairs Passage lies Kangaroo Island athwart the entrances to the two gulfs previously mentioned, thus forming a bulwark against the heavy seas which at times come raging in from the Southern Ocean, so that the waters of the gulfs are seldom very rough, and teem with fish of many varieties.

Kangaroo Island is indeed a sportsman's paradise and while the ocean side is composed of very high cliffs forming magnificent scenery the mainland side is generally low lying with shallower seas and sandy bays. The main feature of this island is the Dudley Peninsula with American River situated at the isthmus, and forming the extreme end of the island is Cape Willoughby, a bold granite headland 173 ft. high.

Returning to the mainland the coastline continues on to Victor Harbour, a popular watering place and once the home of the whale fishing industry in the early days of the State.

Before Victor Harbour is reached, however, we must travel along many miles of rugged coastline which is exposed to the full strength of the Southern Ocean. About 12 miles from this popular seaport we pass Waitpinga beach where the mighty rollers

come pounding in, and then Newland Head is encountered before rounding Rosetta Head after which we enter Encounter Bay in which lies Victor Harbour.

A few miles farther on, the River Murray, principal waterway of Australia, debouches into the ocean, and from here the coastline sweeps on in an unbroken arc for over 90 miles. Mile after mile of windswept and spray-drenched sandy beach, exposed to the thundering breakers from the ocean, stretch away as far as the eye can see.

Beyond the shore line, running parallel with the beach for nearly 90 miles, is a large range of sandhills, Younghusband Peninsula by name, which separates the Coorong from the open sea.

The Coorong is an arm of the Murray and runs just behind this range of sandhills for practically the same distance, and while in some places it is two or three miles from the sea, at others it is only a matter of a few hundred yards away.

The hand of man has made no impression on this spot, which is seldom visited except by sportsmen to whom it is a veritable paradise, and at all times of the year the Coorong teems with fish and wildfowl.

Kingston is next reached and from there on to Robe the coast takes on a different aspect; for here rocky cliffs and reefs recur with increasing splendour while a few miles inland are many lakes containing both fresh and salt water.

The scenery is very beautiful and continues so until Cape Northumberland is reached and a few miles farther on is Nelson, where the Glenelg River reaches the sea.

At this point the Victorian border is also reached and although the Glenelg River is virtually a Victorian river a few miles of it lie within the State of South Australia and at this point we say farewell to the State of Sunny South Australia.

South Australia is not blessed with many rivers of great length with the exception of the River Murray, which taking its rise on the borders of Victoria and New South Wales enters this State near Renmark, thereafter following a winding course to enter the sea a few miles south of Victor Harbour. The remaining principal rivers are the Torrens, Para and Gawler which flow across the Adelaide Wakefield Plains, and the Onkaparinga, which enters the sea approximately 20 miles south of Adelaide.

The hills around Adelaide abound with small creeks, some of which have been stocked with brown and rainbow trout and in the season provide good sport for the disciples of Izaak Walton.

Most of these rivers, with the exception of the Murray, run only a short course and have a quick fall to the sea, but their shortness is offset by their thickly covered banks which give valuable cover to the fish and the angler will have to work very hard to catch a brace or two of trout from these streams.

I propose to deal separately with trout fishing in South Australia, so that any further remarks on that subject I will reserve until later.

Trout Fishing in South Australia

In 1914 when the first troutlings were liberated in the rivers that traverse the Adelaide Plains and also a few tributaries that feed the River Murray, trout fishing was a sport that had very few followers in South Australia.

Today, however, that number has greatly increased so that trout tackle of all kinds is in great demand, while the opening day of the season, the 1st of September, is looked forward to with great anticipation.

The dry-fly purist is a *rara avis* in this State, for with the exception of visitors from

other States and people from the British Isles who have come to Australia to take up their residence, the average South Australian knows very little about the art of dry-fly fishing, though he makes up for his lack of experience with his willingness to learn; and any dry-fly angler can always be sure of an audience when he wishes to explain the finer points of this branch of the gentle art.

The main rivers containing trout do not attain a very great length nor are they to be compared with the well-known trouting streams of England and Scotland which can boast of many beautiful rippling streams and long reaches suitably adapted for both wet and dry fly, so that any visitor from the Homeland must be prepared to fish under conditions entirely different to those which he experienced at home.

The rivers I propose to deal with are the Torrens, Finniss, Gawler and South Para, Onkaparinga and the Myponga Creek, and are all within a short distance of Adelaide, the farthest being reached within an hour and a half by motor.

There are several others of lesser importance which have been stocked with trout at various times but no concrete evidence is available to prove that fish still exist in these rivers.

With the exception of the Myponga Creek all the rivers possess the same physical features ; from their source in the hills that surround Adelaide they make their short journey to the sea by means of a series of pools, which in the winter are united by fast running streams flowing under overhanging trees, but in the summer become a chain of water holes connected by a very thin trickle of water.

Most of these holes are fairly deep, some of them attaining a depth of 20 to 30 ft., and are overhung with ti-trees and blackberry bushes, while at other points they are fringed with giant bulrushes and flags. The river beds are generally fairly rocky and often have large logs embedded in their course, interspersed with gravelly stretches of which the trout make full use during the spawning season which is generally in the month of July.

The natural cover found on the banks of these rivers is of great advantage to the trout as apart from protecting the fish from its natural enemies it also makes the approach for the angler very difficult as he has to work hard to grass his trout and entails much creeping and back-bending during a day's fishing.

Since trout were first liberated in this State, some 50,000 fish have been released in the various rivers by the Government and by the S.A. Fish Protection and Anglers' Association, and although no further liberations have been made since 1937 (with the exception of 2,000 fingerlings in the River Torrens in 1938), the trout have bred successfully in many rivers which is proved by the fact that numerous two-year-old trout were taken during the 1945 season.

The Myponga Creek is slightly different in some respects from the other streams inasmuch as there is generally a good flow of water all the year round and by virtue of its inaccessibility it is not so heavily fished.

The season opens on the 1st of September and continues until the end of April. There is no licence required for trout fishing except in the reservoirs, which previous to the outbreak of war were open to the public on payment of 2s. 6d. per day.

At present, however, under the National Security Regulations the reservoirs are closed but it is hoped that in the near future this restriction will be removed. There is no limit to the number of trout which may be taken but stringent regulations compel the return to water of fish under 10 ins. in length.

The average size of fish taken is 1½ lbs. but fish of 3 and 4 lbs. are not uncommon, and fish up to 7 lbs. have also been caught, while in the River Murray large specimens up to 12 lbs. have been caught in the fishermen's nets.

The angler may use any legal lure he wishes and consequently on the river side are to be found the dry-fly enthusiast, the worm fisher, the spinner devotee and the wet-fly angler.

As previously mentioned the dry-fly anglers are few on these waters, and the worm fisher, although he has quite a number of followers, has his period of success limited to a very short time, as generally after the month of October the waters are so clear as to prevent any attempt at this branch of the sport and the rivers do not lend themselves to clear water worm fishing.

Spinning is a very popular pastime, the principal lure being a 1½-in. Pennell Devon, and native crustaceans, known locally as "yabbies," are highly successful at times. Considerable success is often obtained with the wet fly before the river gets down to summer level but care has to be taken when making a cast for the overhanging trees form a stiff obstacle to the long cast.

Most of the rivers flow through private property but as a rule permission is readily granted to the angler, and where the river runs through Crown property the angler can wander as he wills.

The River Torrens rises in the Mount Lofty Ranges and flows over a short course of approximately 35 miles before it eventually loses itself in the Reed Beds at Fulham, whence it finally gains the sea at Port Adelaide where it is known as the Port River, and also at Glenelg where the name is changed to that of the Patawilunga Creek.

Most of the trout fishing in this river is done over a stretch of 15 miles, commencing at the first weir in the Torrens Gorge about 10 miles from Adelaide and continuing upward through the gorge until the Recreation Grounds are reached.

Over this distance the river is hemmed in by high hills on either side but the river is quite accessible in most places as a good road runs alongside for a good distance and to those who like to work hard for their fish good sport can be expected, although every fish hooked may not turn out to be a trout. Like the Onkaparinga, this river contains many perch which run up to 1½ lbs. in weight.

At the early part of the season, during the months of September and October, the river is generally swollen with the winter rains and the worm fisher holds sway; using a No. 4 to No. 7 hook baited with a brandling worm many fish up to 3 lbs. are taken. While most anglers deplore this type of fishing it must be remembered that the South Australian has yet to be educated up to the dry-fly standard.

As the water clears, though still running fairly fast, wet-fly fishing often brings good results but this state of affairs does not last long, the best month being November. The most popular flies used are the Coch-y-Bondhu, Coachman and Matuka dressed on a No. 5 hook, although the writer has killed many fish using a March Brown, Blue Upright and Woodcock tied on a 2x level cast. As a rule a long line is seldom required but the angler must be prepared for a sudden rush of a big fish.

There is no recognised ruse on the South Australian rivers as the trout principally feed on fresh water snails, yabbies and various types of grubs, but during the summer months, that is, December to March, the trout come to the dry fly towards evening, and many fine trout are hooked on the Red Tag, Wickham's Fancy and Olive Blue Dun.

The reader must bear in mind that there is very little twilight in this State and in

the summer it is generally dark by 8.15 p.m., so that anyone desiring to fish in the evening rise should be at the water not later than 4 p.m., which would give at least 4 hours' fishing before returning home. Night fishing is not advocated on account of the rocky bottom which prevents wading, and also the roughness of the surrounding banks which provide many pitfalls for the unwary.

The trout of this stream comprise two varieties, namely the brown and rainbow trout, the latter not being so plentiful as the former.

Rising only a few miles from the Torrens, the Onkaparinga flows in a south-easterly direction and eventually empties into the Saint Vincent Gulf about 21 miles south of Adelaide.

Following a very tortuous course it passes the pretty little town of Woodside, and after Balhannah and Oakbank (where the Great Eastern Steeplechase is run every Easter) it is joined by Cox's Creek just above Mylor. Flowing under the road bridge at Mylor the river goes through very rugged and wild country until at Mount Bold it enters the reservoir built there, where the water is impounded to form one of the many supplies for the city of Adelaide.

Below the reservoir the river continues in reduced size until it is joined by Scott's Creek and from thence onward it begins to assume larger proportions until it is again dammed back by a weir at Clarendon for further drinking water conservation.

From Clarendon onwards the river runs on to thread its way through the hills until at Noarlunga it sweeps round almost in a complete circle as it leaves the Mount Lofty Ranges and enters the intervening plain. From this point onwards the river is tidal, and in crossing the 4 or 5 miles of country before the sea is reached it twists and turns through marshy land until at Port Noarlunga it practically doubles back on its tracks before running along the edge of a range of sand hills, where it eventually cuts through the sandy beach and reaches the Saint Vincent Gulf.

Of late years the mouth of this river has been silting up, and the cause of this has been attributed by some to the building of Mount Bold Reservoir; but as this does not affect the trout fishing I do not propose to enter into any controversy on the matter.

This river is much akin to the River Torrens inasmuch as it comprises a succession of water holes with intervening streams which in summer are sometimes quite dry, but the holes in most cases are much deeper than those of the Torrens and the trout on the average are larger. Perch also are to be caught in this river, and fish up to 3 or 4 lbs. have been taken at times.

Most of the river runs through private property, but as a rule the land owner or farmer is willing to grant permission to a *bona fide* angler, while on Crown property the same latitude is allowed, with the exception of Mount Bold and Clarendon Reservoirs, where fishing is not permitted.

In some cases the river is hard to reach, the road not always being convenient, especially between Mylor and Clarendon, where the river runs between very high hills, necessitating some hard climbing up and down before the river is reached.

The river at most points is only 20 miles from Adelaide and can be reached in an hour easily by motor, but for those who desire it accommodation at reasonable tariff can be obtained at the various towns along the river banks such as Balhannah, Bridgewater, Clarendon and Noarlunga.

The scenery around Bridgewater is very pretty, and many English trees and shrubs are to be seen, while some of the byways are reminiscent of those beautiful country



lanes of the old country, overhung with hawthorn and oaks, the edges of the road bordered by the wild rose, brambles, gorse and broom.

Of all the flies I have tried on this river I have found the most successful to be the Coachman, Professor, Red Tag and the Woodcock and Green, the best results being obtained in the late afternoon during the months of November, December and January.

Worm fishing is practised during the rainy season when the river is in spate, and here, too, as on the Torrens, the spinner is very popular, the favourite lure being a Pennell Devon.

Wet fly also has its enthusiasts on this river, but they are greatly handicapped by the overhanging trees on the river banks as well as by the fact that the streams between the water holes do not assume sufficient proportions in some cases to justify wet-fly fishing.

In the case of this river, although the angler will have to work hard to get his fish, he is more than amply repaid for his toil by the beautiful scenery through which he passes, and even if his catch is only two or three trout at the end of the day the pleasure derived from the outing spent at the riverside easily outweighs the number of fish in his bag.

The Finnis River, rising at the Meadows, flows a course of approximately 35 miles through the Willunga Hills before it finally flows into an arm of Lake Alexandrina, and throughout its journey has much in common with the two previously mentioned rivers.

Trout up to 7 lbs. have been caught in this river and the opinion is held by many that the large trout taken in the river Murray not far from where this river joins Lake Alexandrina have had their origin in the Finnis. Late in the season of 1945 a large trout weighing $11\frac{1}{2}$ lbs. was taken at the confluence of these two rivers.

The country through which this river flows is fairly hilly, but is accessible by road between the Meadows and until the township of Ashbourne is reached, but after that the main road wanders away from the river, and the bush tracks leading to the water's edge are very rough; in some cases loose sand predominates, making the going very hard for the motorist.

As in the case of the other rivers, the months of September to November are the best for worm fishing and wet fly, but from then until the end of the season best results are obtained with the dry fly and the spinner, although if rain occurs during April, causing the streams to run again, good sport can be obtained with the wet fly, using March Brown, Coachman, Red Tag and Greenwell Glory.

I have found a single Matuka an excellent fly for this river if fished after the manner of a nymph, and fish weighing up to 5 lbs. have been caught in this fashion.

Spinning is also an attractive form of fishing on the Finnis, and in the hands of an expert the Pennell Devon can be a very deadly lure, while the yabbie fished after the manner of a prawn has accounted for many fine trout.

At its farthest point the Finnis is 50 miles from Adelaide, but accommodation can be found at Strathalbyn, Milang and Goolwa, which are placed about 8 to 10 miles from the river. It can also be reached by motor in an hour and a half from Adelaide.

The angler will find more solitude on this river than those nearer the city, and in most cases will generally have the river to himself all the day.

On most occasions the fish caught will be trout, but down at the mouth there is the possibility of catching some of the native fish which have wandered from the Murray, especially if fishing with the worm or yabbie, but as these native fish (which will comprise either callop or bream) provide good sport they are not to be despised.

Rising near the township of Willunga the Myponga Creek travels only a comparatively short distance of 20 miles before it reaches the sea. From its source until it reaches Myponga it is very small and narrow, and the observer would be justified in thinking that large trout could not possibly exist in such a river, but such is not the case as, despite the narrowness of this creek, it contains trout up to 5 or 6 lbs., while one over 7 lbs. was found dead on the river bank a few years ago.

Although this river has only been stocked once with trout (and that was as far back as 1915) the fish continue to thrive and breed every year.

The main feature of this river is that there is a continual flow of water all the year round and this is no doubt the reason why the trout have fared so well.

From Myponga to the sea, a distance of approximately 8 miles, the best fishing is obtained, and, generally speaking, the banks are fairly clear of obstructions until about 3 miles from the sea, but from thence onward the banks are clothed in heavy undergrowth consisting mainly of ti-tree. Despite this there are several narrow runs where the spinner can be used with advantage.

About 2 miles from the mouth the river drops over a series of small waterfalls, and at one particular spot over a distance of 100 yds. the river drops 150 ft., but from the commencement of this drop up to Myponga good fishing can be secured, as the river consists of streams with small holes intervening.

On account of its size the dry fly can only be used on few occasions on this creek, but the grasshopper used as a live bait is a very deadly lure and, although wet fly can also be used, the size of the stream again hampers the angler.

The best results are obtained with the spinner, especially in the narrow runs where the current has undermined the banks, and although these runs are narrow they are sometimes up to 5 ft. in depth, and as the fish take the spinner with great eagerness the angler must be prepared for a heavy tug at any moment.

The average size of fish is 2 lbs. and the angler will find that these are quite big enough to cope with, considering the restricted amount of water available in which to play the fish.

The best spinner I have found to be a Quill Minnow, as being lighter than the Pennell Devon it does not sink so quickly; besides, the extra weight of the Devon is not necessary as the lure does not require to be thrown any great distance when fishing the narrow runs.

Good results are to be obtained practically throughout the season, but September to the end of December appear to be the best for spinning, while, of course, the worm can be used whenever the water is in spate; in fact, worm fishing in this creek reminds me of good burn fishing obtained in Scotland many years ago, when the object was to creep from hole to hole and drop the worm in gently from behind the shelter of a whin bush.

During February and March the dry fly can be used in the various holes, but this consists more after the style of dapping rather than actual dry-fly fishing, as a long line is very seldom required on account of the narrowness of the stream, while the most popular flies are Coch-y-Bondhu, Red Spinner, Black Ant, Hare's Ear and Wickham's Fancy, and during the month of January the Ti-Tree Beetle also is successful.

The township of Myponga is about 45 miles from Adelaide; branching off from the main road just through the township a by-road runs down to the beach, and from this by-road the river can be reached; but the angler will have to walk and climb down some steep gullies before he reaches the stream.

There is no hotel at Myponga, therefore accommodation is not available unless

arrangements can be made with some of the people of the township, but other towns are nearby, namely, Willunga and Yankalilla, both of which possess hotels and are distant from the river about 15 miles.

The other river previously mentioned is the Para and I do not propose to dwell at any length on this river as not much information is available concerning the trout taken therein. As far as its physical features are concerned it is very similar to the Onkaparinga and Torrens, so that anyone desiring to fish on the Para will have to be prepared to do his share of hard work before landing his fish.

In conclusion it would be as well to give here a few observations on the class of tackle to be used while fishing in South Australian waters.

As far as rods are concerned, two classes of rod will be found necessary. First, a rod is required to fish both wet and dry fly, and while it must be suitable for dry-fly fishing it must also be stiff enough to satisfy the underwater working of the wet fly.

Concerning the reel, the best type to be used must have a narrow drum to ensure quick recovery of line as fishing in these waters the trout must not be allowed too much latitude; in most places it is not easy to follow him on account of the undergrowth, and therefore rapid recovery of line is essential.

The length of the line need not be more than 30 yds., with enough backing to fill up the reel, although it is not anticipated that the full length of line will ever be called upon.

A landing net is necessary, as in most cases it is very difficult to draw the fish on to the bank, and the angler will find that the collapsible type is the most useful as it is less liable to be caught up in the bushes while travelling from pool to pool.

For spinning, a rod of 8 ft. in length is suggested as being the most serviceable, while the type of reel to be used should be of the fixed spool type with a line of breaking strain of about 2 to 3 lbs.

In closing I would remind the reader that the South Australian streams differ vastly from those of the United Kingdom, nor can they compare with those of New Zealand or Tasmania, but trout are in these rivers and have been caught weighing up to 7 lbs. in weight; so, as previously stated, for those anglers who like to enjoy angling commensurate with hard work in the form of climbing and stalking, a good holiday can be obtained in South Australia.

Fresh Water Fishing in South Australia

Fresh water fishing, apart from trout fishing, in South Australia is confined almost entirely to the River Murray, but although this State is lacking in numbers as far as rivers are concerned this defect is fully made up by the opportunities available through the 400 mile course of this mighty waterway as it winds its way from the Victorian border until it finally opens up into the huge lake of Lake Alexandrina, whence it flows into the sea.

To attempt to describe every likely fishing spot along the banks of this river would be a Herculean task, but it is sufficient to say that from the time of entering South Australia until it flows into the sea the whole river presents everlasting attractions to the angler to enjoy himself to the full on Australia's main watercourse.

Carving its way through rocky cliffs and spreading out over alluvial plains, confined sometimes into narrow channels and at others spreading out until it is nearly half a mile wide between its banks, the river follows its age-old course with ever changing scenery.

Ranging from the lightest yellow to the deepest brown the cliffs respond to every

degree of light, and on the plains the beautiful gums are reflected in the quiet waters, while the ubiquitous willows provide a perpetual shade on the hot days when the thermometer registers well over 100 degrees in the shade.

All along the banks are scattered various towns, amongst which Tailem Bend, Murray Bridge, Mannum, Blanchetown, Morgan and Renmark are the principal ones. Good accommodation can be secured at all these towns and the professional fishermen engaged along the river are always willing to hire out boats for anglers at a very reasonable rate.

For those who prefer a camping holiday there are many beautiful spots between these towns which are easily reached by road, and as the weather can usually be relied upon a very enjoyable time can be obtained. The angler who does not possess a car can travel to these towns by bus or train (but of course cannot reach some of the outlying spots) and after a day's fishing return home the same day.

The principal fish caught in the Murray are the Murray cod (*Oligorus macquariensis*) which attains a length of 6 ft. and a weight of 150 lbs., although the amateur angler very seldom encounters a fish of these dimensions.

The callop, bream and catfish are also caught in large numbers while the congolli and tench, the latter an imported fish from England, also provide sport from time to time.

These fish can be caught all along the Murray from Renmark to within a few miles of Goolwa, while at the estuary and up to Goolwa the butterfish or mulloway, salmon and mullet are also caught in large quantities. The reader's attention is drawn to the fact that the salmon mentioned above is in no way related to the salmon of Europe or America, but nevertheless gives much satisfaction to anglers on account of its fighting qualities. However, as the last three mentioned fish are also caught in the sea I do not propose to deal with them here.

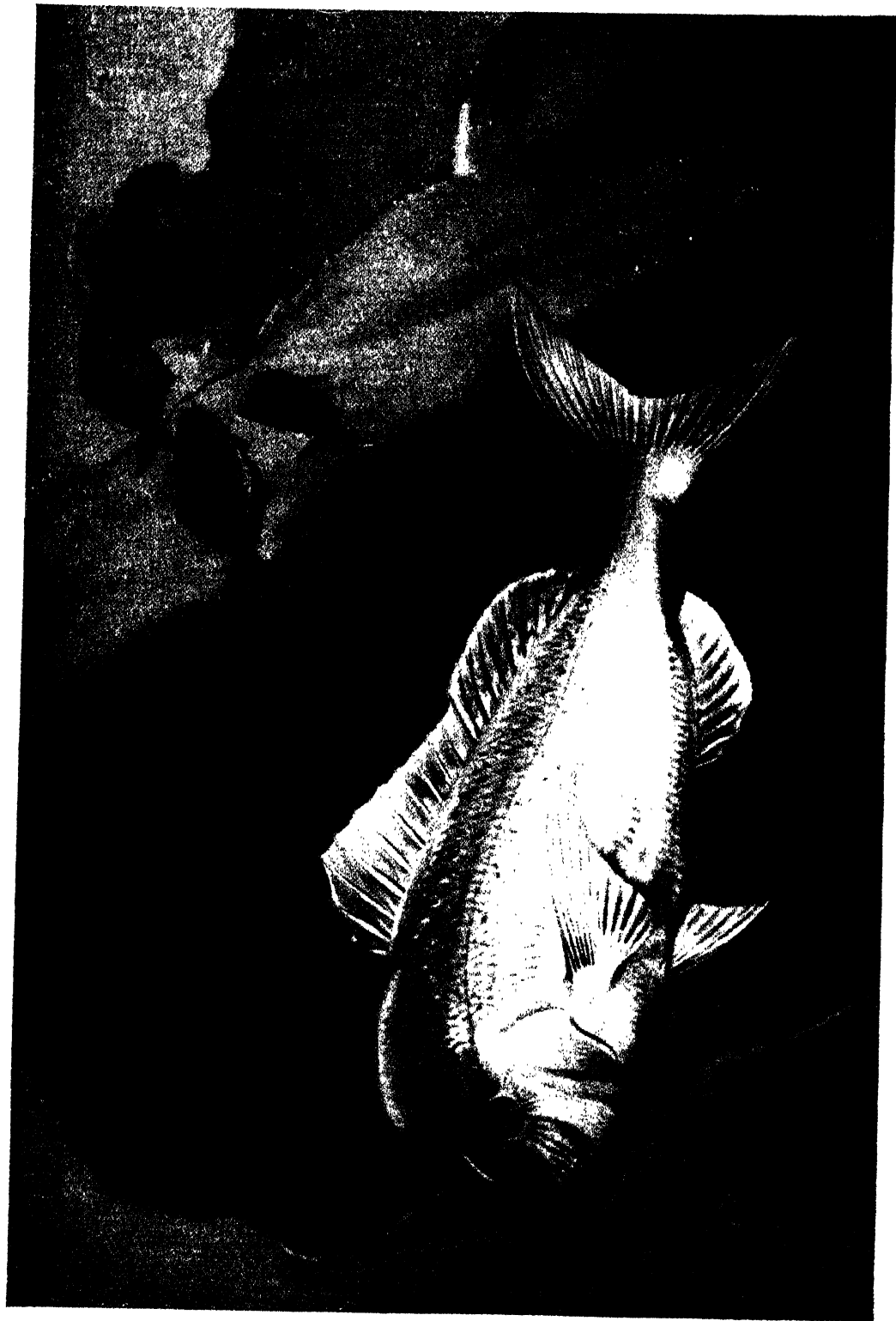
The most suitable time of the year to fish on the River Murray is from October to March, both from a weather viewpoint and also as far as results are concerned; but that is, of course, speaking broadly, as the condition of the river is controlled to a great extent by the headwaters which are fed from the snow-clad ranges in Victoria, and if the summer be a late one the result is reflected in the condition of the river in South Australia.

To assist irrigation on what is known as the Murray Flats many locks have been built throughout the length of the river, and usually at the lock are to be found large quantities of fish awaiting the opening of the gates in order to move upstream, and fishing is prohibited within 50 yds. of these locks, the reason being obvious.

Although the Murray cod grows to huge proportions and many over 100 lbs. are caught, these seldom fall to the line of the amateur and are generally taken in nets by the professional fishermen, yet in the month of June of this year a boy of 14 years of age caught one weighing 95 lbs. using a handline and fishing from a boat.

The amateur, however, will have to be prepared for any emergency, as fish up to 20 lbs. are regularly caught, but despite their weight this type of fish puts up a very disappointing show as far as a fight is concerned, and is often inclined to swim along with the line as it is pulled in.

No licence is required to fish with rod and line on this river, and the angler, too, has a free run of the river in most cases so that he need have little fear of trespassing; nor need he worry about a closed season, as fish may be taken all the year round with the exception of Murray cod, which have a closed season from the 1st of September to the 31st of October.





The principal method of catching Murray fish is by bait, used either dead or alive, and these baits consist of yabbies, worms, and shrimps. Other baits have been tried but these mentioned have proved most satisfactory. A grub named the pelltity affords good bait also, but these are not always easily obtained.

Spinning brings very good results when fishing for cod, but this method of fishing is confined by law to below Murray Bridge, as above this point the possibilities of catching fish by this method are greater, and there is always the probability of being caught up on the numerous cross lines placed in the river by the professional fishermen, and the consequent loss of tackle.

Wherever possible it is advisable to procure a boat as the best fishing is to be had in the shade of the willows or along the rush-lined banks, and also because even where the banks are clear of trees the weeds generally extend for several yards from the shore and makes fishing under these circumstances very difficult.

The usual method of fishing is with paternoster tackle, that is, with a lead sinker of 2 ozs. weight and 2 hooks placed about 1 ft. and 2 ft. respectively from the sinker, the size of the hook varying according to the angler's taste, but for all-round purposes the size No. 3 is to be preferred.

Other methods consist of tying one hook above the lead weight about a distance of 18 ins. and having the other hook about 12 ins. below the weight; the weight, however, would have to be outrigged so that any bite on the bottom hook would be felt along the cast and not passing through the weight itself.

As the fish generally feed close to the bank most of the fishing is done in the shade of the willows in that locality, but the angler has to be on the look-out for snags, as the roots of the various trees stretch out under the water, the fish generally making a dash in this direction when hooked.

As a rule the cod are usually found in the deep water which at times reaches a depth of 90 to 100 ft., and the bream frequent the reedy margins of the river. The callop and catfish are mainly caught in the vicinity of the willow trees, as they usually prefer shallow water. Other fish taken at times are the congolli, which attains a maximum length of 14 ins., and the tench, which is an imported fish from England and its sporting qualifications have yet to be proved on the River Murray.

The cod prefers the yabbie as a bait although at times, generally about March, has shown a liking for pelltities, a grub about 2 ins. long which is found about 2 ft. below the ground at the base of the big gum trees along the river banks.

For its size the bream is the best fighter of the Murray fish, and although it does not gain such huge proportions as the cod, it grows to a respectable size, and specimens have been caught up to 7 lbs., but the average size caught is 2½ lbs., while the minimum length permissible to take must not be less than 8 ins.

This class of fish appears to favour worms, brandling in particular, but shrimps have often proved a very satisfactory bait; this fish is not to be confused with the bream that is caught in the estuaries of other tidal rivers in South Australia and which is dealt with later.

The catfish, which reaches a length of 25 ins., is most often caught along the edges of the willows, the minimum length being 10 ins. This fish (which has to be skinned before being cooked) builds a nest of pebbles at the bottom of the river and maintains guard over the eggs until they are hatched.

The best time of the year to try for these fish is about January until April, and they

show a preference for shrimps, but like most of the Murray fish, vary their diet accordingly.

As far as taste is concerned the callop is preferred to the cod by many people, and after them the bream is considered to be the best fighter. Unfortunately, light tackle is seldom employed by the Murray angler and therefore the sporting qualities of these fish are lost.

Apart from the underwater roots of trees there are very few snags to be overcome in this river, and an angler using light tackle can have a great deal of sport after hooking a fish if he is prepared to angle more for the sport than for the size of the bag.

The callop, or Murray perch, as it is sometimes called, grows to a length of 23 ins. and weighs up to 9 lbs., the average size caught being $2\frac{1}{2}$ to 3 lbs., and any fish caught under 10 ins. must be returned to the water.

This fish feeds mainly on shrimps, but good catches have been obtained on yabbies, when this bait is procurable.

Generally speaking, although Murray fish are caught through the day, undoubtedly the best time is either in the early morning, that is, an hour before sunrise until about 11 o'clock, or from 4 o'clock in the afternoon until 2 hours after sunset.

Concerning tackle, a rod of 8 ft. in length is sufficiently long to handle with comfort in a boat, and the average size of hook ranges from No. 6 to No. 3, although when fishing for large cod bigger ones could be used with advantage.

The reel can be left to the choice of the individual angler, as any bait casting reel would serve the purpose on this river.

Shrimps for bait are to be captured in the weedy areas adjoining the bank, and it is advisable for the angler to take his own shrimp net, which is usually made up from shrimp netting and can be purchased from any fishing tackle dealer in Adelaide.

It must be of a collapsible design and when extended should measure 18 ins. in diameter by 10 ins. deep. The bottom consists of wire mesh netting, about 28 gauge by 14 mesh, and is reinforced with wire hoops. The sides are made of shrimp netting and the top, which is left open to allow entry of the shrimps, is also reinforced by 8 gauge wire hoop, to which a length of rope is tied to enable the angler to recover his net.

A piece of meat is usually employed as a bait and is tied to the bottom of the net. When dropped into the river the whole collapses and lies flat on the bed of the river until the angler is satisfied that there are shrimps in the net; whereupon a sharp pull extends the net and at the same time brings it to the surface.

Most anglers on this river use a gut line, but linen lines serve the same purpose, and as the former have been in short supply since the war they are very seldom seen in action. The usual size of lines employed are No. 11 for gut and No. 1 for linen.

A landing net is necessary in a boat to lift the fish out of the water and in the case of large fish a gaff is advisable.

The spinners used are generally of the same design and consist of a triple hook camouflaged by a feathered dressing with two spinners or propellers revolving in opposite directions, the blades being painted red underneath and nickel-plated on top, the overall length being approximately 6 ins.

The pelltity or witchity grub can sometimes be purchased from fuel merchants who come across them when splitting Mallee roots which are used for household fuel in this country, but as this source is unreliable the best way is for the angler to seek for them himself in their native environment.

The method usually adopted is this: First of all, clear away the dead leaves from

the base of the huge gum trees which line the riverside; thus the holes or burrows of the grub are revealed, and are generally found to be about $\frac{3}{8}$ or $\frac{1}{2}$ in. in diameter, descending into the ground to a depth of 2 to 3 ft. A piece of thin flexible wire $\frac{1}{16}$ of an inch in diameter is then procured and the end shaped into a spiral similar to that of a corkscrew.

This is then placed in the hole and pushed down until an obstruction is felt, which usually turns out to be the grub, and by twisting the wire the spiral end encloses the grub, like a nut engaging a screw, whereupon the wire is carefully withdrawn with the grub encircled in the spiral end.

As a general rule the road runs fairly close to the river and crossings are effected by means of punts for which a toll has to be paid, the charge averaging about twopence per head with an extra fee for vehicles.

Apart from the many delightful spots for campers to be found along the riverside several of the various towns on the Murray have set aside reserves for the benefit of campers where the usual amenities are to be found, such as fireplaces, drinking water, etc., and as these are generally situated under the shade of towering gums and peppercorn trees the conditions are ideal for this purpose.

If the angler is, as most anglers are, a lover of nature, there will be found plenty of scope for his observations along the banks of this river, as the whole district teems with wild life, from the huge pelicans to the tiny willow wrens. Wild duck also is plentiful at times, and during the shooting season the Murray is a favourite resort for the followers of this pastime, but it is as well to mention here that several sections have been reserved as bird sanctuaries, and should the angler contemplate taking a gun with him he would be advised to ascertain where these spots are in case he infringes the law unwittingly.

In conclusion, let me add that since the building of the barrages near the river mouth at Goolwa, which have caused the river to be dammed back, the fishing has to a slight extent been affected in that locality, but the time elapsed since has been of such short duration that it would be difficult to say at this stage whether it has been beneficial or otherwise; the opinion held by many is that the fresh water fish have increased, to the exclusion of the salt water fish which used to inhabit these areas.

Estuary Fishing and Surf Fishing

Estuary fishing in South Australia can hardly be called salt water fishing as at low tide the water in the estuaries is either fresh or brackish, while at high tide it is definitely salt, so for that reason I propose to deal with that class of fishing enjoyed under the above conditions as a separate class of angling.

The principal river where this class of fishing is carried out is the Onkaparinga, its popularity no doubt due to its proximity to Adelaide, only 21 miles distant; others, too, that attract anglers are the Murray, Myponga, and Pedler's Creek, while at Kangaroo Island most of the rivers have similar attractions at their mouths for the angler.

Included in the category of estuary fishers are bream fishers (not to be confused with the Murray bream) who angle both in estuary and also higher up in fresh water. Taking bream fishing first, the recognised method in this State is either a live bait such as whitebait or a dead bait of some nature which will be described later.

Fishing for bream requires very light though strong tackle, as this fish is a wary customer and a gallant fighter and requires careful handling until he is safe in the bag. Using a light line, a thread line preferably, and a cast of level 4x quality with a No. 7

model Perfect hook, brings the best results. The line is threaded through a running sinker of about $\frac{1}{2}$ oz. in weight, and to prevent it running down to the hook it is held back by a small split shot nipped on to the line about 2 ins. from where the line and the cast are joined.

As I recommend a thread line so do I also advise a spinning reel which enables the angler to throw out a good distance, although many anglers achieve good throws by peeling the line off the reel and dropping it loosely on to a piece of canvas; this is necessary to keep the line free from the mud which often is found at the edge of the rivers. After this the bait is thrown out, taking the line with it. This, however, often has disastrous results when the thrower steps on his line, bringing its travel to a sudden halt, whereupon bait, sinker and all are lost as the cast breaks.

The main baits are shrimps, whitebait, crabs, sea worms, meat and fillets of mullet. All of these baits can be procured from the river itself with the exception of the sea worms, which have to be dug from the mud flats at Port Adelaide, and the meat—which is usually horseflesh—finely minced and mixed with oatmeal.

Whitebait are generally caught in a trap which has been set in the river the night before fishing, or, if that is not possible, as soon as the river is reached, preparatory to commencing to fish.

Shrimps are usually netted by a hand net from among the weeds that grow in the water at the river edge, while the crabs are dug out of their holes on the banks of the river. Mullet may be purchased from the fishmonger, but invariably the angler can catch sufficient small ones in the river itself to ensure him enough bait.

The best time of the year to fish for bream is from the month of August to the end of December, after which the fish lose flavour and fighting capacity and also do not bite so well.

Although an occasional fish is picked up through the day the most favoured time appears to be at dawn and upwards of three hours afterwards, while the late afternoon until sundown also brings good results.

The tide as it flows up the river has its effect upon the fish and the influx of different water puts these fish on the feed, apparently stirring up the river bottom and releasing feeding material which has been lying there.

The Onkaparinga, on account of its nearness to Adelaide, is the most popular of bream rivers in this State, and can be fished from its mouth up to the township of Noarlunga, terminating at the "Big Hole" above which the influence of the tide is not felt. At certain times of the year, especially in December, this hole is full of fish and good sport is often obtained here. The river banks are free from any obstruction in the way of bushes and the angler always has plenty of room to operate and play his fish.

Various good spots are to be found along this river, such as the Sheet Piling, White Rocks and the Alloes, which places would be easily pointed out by any local resident on inquiry.

Bream are occasionally taken weighing 5 lbs., but the average is usually about $1\frac{1}{2}$ to $2\frac{1}{2}$ lbs. On account of the number of anglers operating on this river, however, these fish are not so easily caught as on the other rivers of this State.

Both Port Noarlunga and Noarlunga possess good hotels with reasonable tariff, and are both equidistant from Adelaide, so that anglers preferring to fish up the river would be advised to make Port Noarlunga their headquarters, while, of course, the opposite would apply to those who desired to fish down the river. At Port Noarlunga boats can be hired at an hourly or daily rate, whichever is preferred.



PLATE 59

ESTUARY PERCH
(*PERCALATES COLONORUM*)

AUSTRALIA

Kangaroo Island is reached either by boat or 'plane, the boat leaving Port Adelaide on Friday night and returning on Saturday night. As the journey occupies approximately eight hours, anyone travelling by boat must be prepared to stay the week at the island, as there would not be any time available for fishing if the return trip was made the following day.

The plane service is more frequent and takes only an hour, but the angler is restricted as far as luggage is concerned and those anglers who wish to take a lot of fishing gear with them would find this a handicap.

As cars are also transported by boat the angler who takes his car with him will find it a big advantage in reaching the many fishable spots that are on this island, although some of the roads are mere tracks and leave much to be desired; but to some men this does not make much difference, as the rougher it is the better they like it.

The angler is well catered for on the island, guest houses and hotels being situated at Kingscote, Hogg Bay and American River. The scenery is very rugged and picturesque, especially on the coast facing the Southern Ocean, where the cliffs rise to several hundred feet in height, and at the northern end is to be found Flinders Chase, in which the fauna and flora are protected, but no restriction is made on the taking of fish, except that the minimum length for bream is 8 ins.

Kangaroo Island has several rivers which provide good bream fishing, the most notable ones being the Harriet River, the Cygnet River, Middle River and Nor' West River, while at Vivonne Bay the creek which empties into the ocean at that point also provides excellent bream fishing.

The Cygnet River is perhaps the most convenient river as it lies only a few miles from Kingscote, while the remainder are farther afield, Vivonne Bay being at the opposite side of the island. They are approachable by road, although the way may be rough at times.

These rivers on Kangaroo Island are not fished as heavily as those on the mainland, and consequently the angler may be almost certain of returning with a good bag, especially during the months of October and November when the fish appear to be biting in their best style.

The same type of bait is used on these rivers as is used in the Onkaparinga, and in addition cockle, a bivalve found at Goolwa near the mouth of the River Murray, is also used with great success on occasions. These would, however, have to be preserved in salt and sugar to be of any use to the angler, as during the hot weather the state of these cockles can easily be imagined if allowed to remain raw.

Another river which provides excellent fishing for the bream angler is that of Salt Creek. Salt Creek, which is situated in the Coorong, is fishable only over approximately $\frac{3}{4}$ of a mile but provides very good sport, and the bream in that river run to very large dimensions.

The writer recalls one glorious day in December, 1939, when, between 4.30 a.m. and 11 a.m., over sixty fish were landed, the heaviest weighing $6\frac{3}{4}$ lbs., the four heaviest weighing 26 lbs., and the total bag tipping the scales at 181 lbs. The principal baits used were fillet of mullet and salt water worms. The line was a thread line of 2 lbs. breaking strain and the reel an Allcock spinning reel.

The biggest drawback to fishing at this spot is its distance from Adelaide, a matter of 150 miles, which makes a day trip out of the question as the best fishing is undoubtedly to be had in the early hours of the morning.

Several anglers who are prepared to spend the night under the stars often make the trip down by motor on Saturday morning and return on the following evening. Those anglers to whom the call of the wild has an added attraction will find that the solitude of the bush can be enjoyed to the utmost in this secluded spot.

Before World War II, accommodation was available at the guest house at Salt Creek, situated about three-quarters of a mile from the fishable part of the river; incidentally, this is the only house for miles in the district, but the outbreak of hostilities caused this place to close down, and at the time of writing it has not been reopened.

However, with more peaceful times the same amenities may once more become possible to the public.

Apart from the angling viewpoint the Coorong has a wonderful appeal to the naturalist and sportsman. The road runs along the edge of this great inland arm of the River Murray for upwards of 60 miles, passing over wide clay pans and salt lakes, dried up with the heat of the sun, or skirting huge sand hills. On the right lies this great stretch of water varying from a quarter of a mile to a mile across and separated from the ocean only by a range of sandhills which at the narrowest part measure only a few hundred yards, and at the widest about 3 miles.

On the left, stretching away for miles, is virgin scrub country in which are to be found many kangaroos, wallabies, emus, foxes and other forms of wild life. Bird sanctuaries are located in various places throughout the Coorong, and these are marked by notice boards.

The angler who contemplates camping in this spot would be well advised to provide drinking water for his trip, as although wells have been sunk at several places along the roadside, this water is very often brackish and the addition of dead snakes and rabbits do not improve its flavour.

As there is no train service to Salt Creek the angler will have to rely upon road transport to arrive at his destination, and if desirous of staying in this vicinity the nearest township is Meningie, on the main road $38\frac{1}{2}$ miles before Salt Creek is reached. On the other hand, Kingston is reached by train but this is 65 miles beyond Salt Creek, while the town of Keith, $51\frac{1}{2}$ miles east, is also on the train line, but the road to be travelled before Salt Creek is reached is very poor and seldom frequented.

The road from Adelaide to Salt Creek is an excellent one, bituminised all the way with the exception of the last few miles, but this was not the case a matter of a few years ago when the much dreaded Coorong road was an ordeal to the traveller and no self-respecting motorist faced this journey without preparing for the possibility of being bogged in sand, and consequently carried shovels and bags to help in extricating his car in the case of such an eventuality.

Gone are these perils now and the road is in good condition all the way through this once dreaded spot.

The best time of the year to fish this river is during the months of October to December as during that period the fish are in good condition and provide good sport; after that they are inclined to lose condition. For the most part the banks are free from obstruction, although at some places they are lined with reeds, but this does not present a very formidable obstacle. The best spot is reached by crossing the bridge and driving down to the river mouth where the river can be waded. At certain times of the year this mouth is sometimes closed by a sand bank and if such is the case the angler can pass over dry

shod, take up his position on the north bank and by casting well out into the deep channel in the middle of the river will be assured of good sport.

Other rivers which provide good fishing in this State are the Hindmarsh and the Inman, which flow into the sea at Victor Harbour. As in the case of other South Australian rivers the best time to fish these is during October to December, but as Victor Harbour is a popular watering place the anglers' opportunities to secure a quiet reach on the river are limited owing to the frequency of boats rowed by holiday makers, and the best time would be in the evening at dusk. As the accommodation at Victor Harbour has been dealt with in another chapter there is no need to repeat it here, unless it would be to state that owing to its popularity it would be advisable to book well ahead at one of the many guest houses or hotels to ensure suitable accommodation.

Surf fishing, which is included in this section, is a most fascinating sport in South Australian waters, as the angler can never be sure as to the class or size of fish which he is likely to catch.

While this branch of the sport is to be enjoyed in any of the sandy beaches in this State it is at the various river mouths that the angler is found most.

Perhaps Port Noarlunga is the most popular place on account of its proximity to Adelaide, but as this spot has already been dealt with previously I do not propose to dwell on it again.

Other attractive places near to Adelaide are Rapid Bay, Second Valley, Sellick's Beach and Waitpinga, which are all situated south of the city; but generally speaking any sandy beach with a good surf breaking gives excellent sport.

The principal fish caught in the surf are mullet, salmon, mullaway and flathead, but occasionally big rays are contacted which play havoc with the angler's tackle unless he is actually fishing for them, when his outfit will no doubt be strong enough for the purpose.

The most suitable time is when the tide is running in and the fish are hanging outside the river mouth awaiting a suitable opportunity to enter the river. The angler is also advised to choose a day with a favourable land breeze blowing, as, apart from the aid derived when casting, the wind also has a flattening effect on the surf. Waders are essential in this type of fishing, otherwise sunburnt legs may result, and painful blisters.

Practically all the summer the angler can follow this sport and even in the winter, provided he is warmly protected from the keen wind off the sea, many pleasant hours can be spent. Actually the best months of the year are November to January and for preference the early hours of the morning are the most suitable. The angler, however, is warned against the dangerous undertow which occurs in many parts of the Australian beaches, and when casting out into the surf as the waves recede he must take care not to venture too far out in case he be engulfed by the incoming wave.

The usual method adopted by anglers proficient in surf fishing is to fish with two hooks, one generally placed about 2 ft. above the sinker while the other is tied about 1 ft. below.

Various types of sinkers are used but one that defies the roll of the surf is spoon shaped, the concave side lying on the sea bed and offering less resistance to the incoming waves.

For mullet a No. 9 hook is used with a variety of baits such as cockle, crayfish and meat (preferably horseflesh). These fish are to be found in great shoals along the coast, and when they are on the feed the fun is fast and furious.

Mullet caught in the surf do not generally exceed 12 ins. in length, and the minimum permissible length is 7 ins. The sport derived from catching this type of fish is not to be compared with the more exhilarating one of fishing for salmon.

This salmon is in no way related to that well-known sporting fish caught in the rivers of the British Isles, the shape being the only resemblance noticeable. Frequenting the huge rollers that come pounding in on these beaches, in search of the smaller fry which are to be found in this type of water, these salmon are to be met with all along the South Australian coast from Cape Jervis to the waters of the Australian Bight.

In their early stages they are known as salmon trout on account of the markings on their sides similar to those of the smolt or salmon parr of the British streams, and at maturity grow to a length of 30 ins. and weigh up to 12 lbs.

They usually congregate in huge shoals right throughout the South Australian coast, as already mentioned, and when seen from the air cover an area of several acres, casting a deep shadow on the sand below.

The professional fishermen often net several tons of these fish in one sweep. They are also taken on rod and line from boats operating at sea, but as this method will be dealt with under sea fishing it will be explained later.

For surf fishing a fairly heavy weight is advisable, as it is necessary to cast out a good distance and also to anchor the line on the sea bed against any possible drift.

A No. 1 or 1/0 hook is the usual size adopted and for a line a 6-cord cuttyhunk with a breaking strain of 18 lbs. is recommended, the hooks being tied on in the same manner as described for mullet fishing; while for bait, squid and raw fish provide the most suitable lure.

Owing to the numerous places where these fish are to be caught it is impossible to mention every one, but from Streaky Bay to Coffins many likely spots are available. On account of their distance from Adelaide these places are not frequently visited, but those anglers who do go to fish in this locality generally make a camping holiday of their outing. Good accommodation, nevertheless, can be obtained at Ceduna. The trip by road is rather long and as a rule takes two days and the roads are not always in the best of condition, yet the journey is made regularly every year by certain anglers who prefer fishing in this locality.

South of Adelaide the main spots are at Rapid Bay and Waitpinga, which can be reached fairly easily by road. The former is only about 56 miles from Adelaide and the road is quite good all the way.

Waitpinga is reached via Victor Harbour which is 50 miles from Adelaide, and a further 12 miles brings the angler to Waitpinga.

These last 12 miles are fairly rough, especially over the latter part of the journey, of which the final 1½ miles must be covered by foot. The angler is well repaid for his rough ride by the glorious view obtained from the top of the hill before descending to the beach.

November and December are the most suitable months of the year to visit this beach, and if the angler is not desirous of travelling the distance from Adelaide excellent accommodation can be obtained at Victor Harbour.

Flathead, although not so plentiful as salmon and mullet, are also caught at various times in this locality and are usually taken on cockles or fish bait on a No. 4 hook using a No. 10 gut as a trace and No. 11 gut as a line. To catch this fish the bait must be kept on the move and the tackle rigged in a similar fashion to that of the mullet and salmon. The minimum size for salmon is 8 ins. and that of flathead is 10 ins.

A fairly stiff rod is advised for these fish, and one to suit all requirements should be a 2-piece split cane rod of 9 ft. in length with a reel of the centre-pin design to ensure easy running, while a gaff is indispensable for drawing the fish out of the heavy surf. Wherever an angler encounters a ray, unless his tackle be exceedingly strong, he must be prepared for a break, but provided he has plenty of line and the beach is clear there is no reason why he should not land his fish. The usual type that will be encountered is the sting ray which grows to a large size, measuring 5 ft. 7 ins. across the disk, and as this fish possesses a formidable tail the angler must be careful he does not come in contact with it as a serious wound is liable to be inflicted. As the ray is of no commercial value there is no restriction with regard to its size.

The point where the River Murray joins the ocean is a very popular place for angling, for the mullaway are caught in huge numbers at certain times of the year.

These fish attain a length of 6 ft. and weigh up to 80 lbs., providing a good tussle for the angler when hooked; and as they prefer a live bait are generally taken on a congolli, mullet or salmon trout.

The method adopted is by passing a No. 7/0 hook tied on a No. 4½ bronze wire trace through the fleshy back of the live bait and about ½ in. behind the dorsal fin. The float is located about 6 ft. from the hook and should be a fairly substantial one, painted red on the upper side to enable the angler to see it from a good distance.

The bait is then cast out into the river as it pours into the sea and is soon borne out on the current, the red float bobbing along on the surface. A good length of line is advisable as the float sometimes runs out as far as 200 or 300 yds., and for strength a 12-thread cuttyhunk is recommended, as these fish are difficult to land and owing to the heavy surf a gaff will also be found necessary.

Many anglers choose to fish from a boat anchored in the river, but this is inadvisable unless accompanied by a professional fisherman or one who knows the river, as the Murray mouth is one of the most treacherous spots on the coast.

January to March are usually found to be the best months of the year for this fish, and accommodation can be secured either at Victor Harbour or Goolwa, both places being served by train and road bus.

At Goolwa and Hindmarsh Island boats can be hired at a very reasonable charge and parties are often formed to take fishing excursions to the river mouth.

Most of the fish previously mentioned are also caught by anglers from boats, but they will be described under the section comprising sea fishing.

Around Robe and Beachport are to be found several lakes, both fresh and salt, where various species of the mullet and salmon are caught; and at Beachport, in particular in Lake George, the salmon possess very fine fighting qualities. These fish are generally caught by trolling a feathered lure or a fish bait from behind a boat. As there is plenty of room to operate the angler who uses light tackle is assured of a thrilling time when one of these fish is hooked.

Most of the seaside towns scattered along the coast of South Australia possess a jetty of one kind or another, and quite a lot of anglers patronise this form of fishing. The results obtained cannot be compared with those of the boat angler, although the methods employed are practically identical.

Rock fishing also has its adherents, but it cannot be too strongly emphasised that considerable danger is always present with this type of fishing on account of the heavy swells which sometimes come surging in as it were from nowhere, and the angler caught

unawares may have great difficulty in reaching safety unless there is someone present to lend a helping hand—and even then many fatalities have occurred in lonely spots along the coast.

Sea Fishing

Most visitors spending an angling vacation in South Australia will in all probability make Adelaide their headquarters, but there are other seaside resorts from where the angler can operate.

Adelaide, however, being centrally situated, will be found the most suitable both for accommodation and also as a jumping-off spot for visiting other localities. In a city of 300,000 population the hotels are first class, and boarding houses at the seaside are also of a high standard.

From Adelaide most of the fishing is done in the waters of the St. Vincent Gulf, the chief port in this section being Port Adelaide, distant from Adelaide about 8 miles. Fishing parties are specially catered for and boats can be hired either by the day or week, either from Port Adelaide or the Outer Harbour, at an average cost of £2 per day, bait in the form of cockles also being supplied.

From Adelaide excursions can be made to the various grounds situated in the Gulf, the most popular being the Silt Grounds, the Norma Wreck and the Blue Hole, the latter being only a mile or so from the Outer Harbour. The Silt Grounds, caused by the dumping of the dredgings when the Outer Harbour was being made, is about 2 miles from the entrance to the harbour and covers an area of several square miles. The Norma Wreck (to which quite a story is attached) lies approximately 5 miles south of the Outer Harbour and 4 miles out from Semaphore. At this spot lie three wrecks, one on top of the other, and are excellent grounds for both snapper and whiting.

The Gulf of St. Vincent includes a large variety of fish, and the following are the most numerous: whiting, snapper, snook, salmon, trevally, garfish, red mullet and leather jacket.

From Port Adelaide trips can be made in a southerly direction to the grounds lying off Glenelg, Marine and Halletts Cove, while going northward other grounds are located off Port Gawler, Middle Beach and Port Wakefield. On the opposite shores of the Gulf well-known grounds are situated off Port Vincent, Stansbury and Edithburgh, but as their distances preclude the trip being made in one day the angler centred at Adelaide would have to arrange accommodation at any of these places, where mine host is always willing to cater for anglers.

The fishing at these seaside towns is excellent and the grounds cover a large area, being found practically all along the coast and the principal fish caught here consist of whiting, snook, snapper, garfish, salmon and flathead.

From Port Noarlunga to Cape Jervis, a distance of 60 miles from Adelaide, several small settlements are to be found along the coastline where dwell many professional fishermen, and although boats are not generally available for hire the professionals are often willing to co-operate with any sportsman.

Off Port Noarlunga the main fish to be caught are snook, salmon, sweep, trevally and yellowtail, all of which provide good sport. The principal grounds here lie just outside the reef, which is distant from the shore about $\frac{1}{2}$ mile and runs parallel to the beach, stretching from the mouth of the Onkaparinga in a northerly direction for 2 miles.

Sellick's Beach, about 8 miles south of Port Noarlunga, is in a rather exposed position,

so that on account of heavy seas encountered at times and also the absence of a jetty, the fishing is very uncertain, although on calm days good sport is obtained about 2 miles out, where whiting and snapper are plentiful.

Beyond Sellick's Beach lies Normanville, where two jetties have been built at various times, but of late have been showing signs of damage caused by the heavy seas which sometimes sweep the coast during the winter. The fishing grounds here extend for several miles in either direction from the town, where snapper and whiting are also caught in large numbers.

12 miles farther down the coast the pretty little hamlets of Second Valley and Rapid Bay provide excellent fishing and at Second Valley there is a safe boat harbour for small craft. As these places are nearer to the open ocean than those farther up the gulf, somewhat heavier seas are at times experienced, but these do not affect any boat lying in the harbour, which is amply sheltered by a big headland thrusting its huge bulk out into the sea.

Good fishing grounds are situated all along the coastline from this point and any outing with the local professional generally brings excellent results. Out from Rapid Bay and Second Valley the main fish which are caught are snook, whiting, snapper and yellowtail.

At the toe of the Fleurieu Peninsula lies Cape Jervis, while across Backstairs Passage, a strait 9 miles in width, can be seen Kangaroo Island. Here at the cape are a few week-end shacks and also a kiosk where light refreshment is served; accommodation, however, is not available. The fishing here is good at times, the controlling element being the weather. Snook, snapper, trevally and whiting are the principal fish taken, but owing to the strong current which runs in the strait most of the fishing is done when the tide is on the turn. Snapper especially run to large sizes and fish of 20 lbs. are not infrequent. On these grounds the water is over 20 fathoms deep and anglers in these grounds have to use very heavy sinkers when the tide is running in order to get the bait down to the bottom.

Whiting and trevally are caught closer inshore and occasionally yellowtail are also taken, while snook are to be had anywhere in the passage.

From Cape Jervis to Encounter Bay the coastline is very barren and rocky and there are no boat harbours along any part of this section, nor are there many inhabitants to be met with; although good fishing is obtainable 2 miles out, these grounds are only visited from Victor Harbour.

Encounter Bay, or as it is more commonly known, Victor Harbour, is the miniature Naples of South Australia, but those readers who have visited this Mediterranean port will notice the difference between the fresh lifegiving breezes that blow in from the Southern Ocean and the odours which permeate the streets of Naples.

At Victor Harbour there is no recognised hirer of boats for sea fishing purposes, but the professional fishermen are quite willing to let out their boats when not in use. The angler is warned against venturing too far out by himself as the currents are treacherous and sudden swells sometimes appear from nowhere. The harbour-master here will kindly give any advice to the angler and also point out the best localities for fishing; and in addition arrange for the angler to accompany him in his own boat on various excursions.

Garfish are caught in good numbers at Encounter Bay, at a point between Wright's Island and the shore, and also at Victor Harbour between the Working Jetty and the Screwpile Jetty, the best time of the year for these fish being March and April, while in September and October salmon, trout and trevally are also taken on these grounds.

Good sweep fishing is obtained in the vicinity of Seal Island, but as this is very open to the sea the angler is advised only to visit this spot in the company of a professional fisherman.

Between Seal Island and West Island good salmon and yellowtail are often found in large numbers, the best time of the year being March, and here again the angler should seek the co-operation of the professional before attempting this trip.

Reverting back to Kangaroo Island (which lies about 50 miles in a south-easterly direction from Adelaide and measures roughly about 100 miles long by 30 wide), this island is indeed a sportsman's paradise, and every year anglers of all kinds make the trip to this fascinating spot. Fishing here is excellent and is obtained right round the coast, while the various hotels and guest houses make a feature of catering for the angler's requirements, but as a description of the facilities for anglers has been given elsewhere there is no need to enlarge on them.

Whiting fishing is *par excellence* in the Bay of Shoals on which Kingscote stands, and also at American River, while at the snapper grounds at Red Banks, a few miles from Kingscote, the angler is always assured of good sport. In the Rip at the Bay of Shoals yellowtail, snook and trevally abound and these fish are generally of the record-breaking size and provide excellent sport.

Around the coast are many delightful spots that are also of historic interest; and such names as Antechamber Bay, Stunsail Boom and Hog Bay bring visions of the early explorers and voyagers around these coasts. From Kingscote and American River the boats from the hotels and guest houses operate on the grounds close by, but the remainder of the coast is only visited by professional fishermen and anglers possessing their own craft on holiday from Adelaide.

Anglers desirous of a holiday often make these trips with the professionals who usually take a week to visit the grounds and make their return back to Adelaide.

From Victor Harbour to Kingston lies a distance of over 100 miles of long curving beaches lashed everlastingly by the huge breakers, and from a distance a pall of mist seems to hang over all as the foam from the crashing waves rises into the air.

There are no fishing facilities available over this stretch, and the grounds are only visited by the professionals from Victor Harbour and Kingston, and even they do not frequent these grounds very often. Here lies an unexploited field for the angler, for huge shoals of various good sporting fish abound and all that is required is the opportunity of visiting this place. Snapper, sweep, snook and yellowtail are in abundance here, sufficient to rival any other well-known fishing spots throughout the world.

At Beachport and Robe, a few miles farther down the coast, good accommodation is available, especially at Robe, where the guest house caters for the angler and runs a boat for the pleasure of the visitors.

Of late a shark fishing industry has been established at Robe for the sake of the oil obtained from that fish, and the angler will have every opportunity of making trips out with these fishers who catch sharks in large quantities every day.

The scenery around Robe is attractive, the rock formations being most interesting, and the angler would be well repaid by a visit to this little seaside town. The grounds here cover a large area and extend as far as Port MacDonnell, and a few miles farther on Nelson is reached which brings us to the end of South Australian territory in this direction.

All these towns are best reached by road, Robe being the farthest from Adelaide, the distance being 212 miles. An excellent bus service serves these towns and runs regular



KAHAWAI—Australian Salmon—*ARRIPIS TRUTTA*

AUSTRALIA

trips every week. Kingston and Beachport are also reached by train, but Robe is a matter of 26 miles from the nearest railway station. Accommodation is good at the various hotels and the proprietors are always willing to assist the angler in the enjoyment of his sport.

Spence's Gulf holds many attractions for the angler, and from Corny Point right round the coastline to Port Lincoln excellent fishing can be obtained. Yorke Peninsula, which forms part of the coast of this gulf, is roughly shaped like a leg, and under the toe is situated Marion Bay, which is well favoured by anglers; working up from this point inside the gulf are found Wardang Island, Port Victoria, Wallaroo, Moonta and Port Broughton, where many South Australian anglers spend their summer vacation, and at the latter place shacks and boats may be hired.

As with the rest of the waters around the coast of South Australia the sea here abounds with snapper, whiting, snook, salmon, and trevally, while other less common kinds are caught, such as the rock cod, parrot fish, flathead, and leather jacket, of course, in lesser numbers.

On the farther side of the gulf from Arno Bay to Tumbly Bay and Point Bolingbroke the excellent fishing continues, and though facilities in the way of boats are only obtainable through the professional, a splendid holiday can be had here, the conditions being of the best and good catches always assured for the angler.

Farther on Port Lincoln is reached and anglers fishing in this district generally make this pretty seaside town their headquarters. Here accommodation is excellent and boats are available for hire at reasonable charges. From this centre Coffin's Bay and Sleaford Bay are reached and fishing here is of first-rate quality, snapper, whiting, groper and snook all being caught less than $\frac{1}{2}$ mile from the shore.

Port Lincoln can be reached either by steamer or plane, road transport being out of the question on account of the roundabout journey involved. The steamer is the most popular form of travel to this seaside resort and only occupies a few hours, but the road is of a very circuitous nature and in some places in very poor condition and the journey is likely to take two days at least.

For quick transport the plane service is undoubtedly the best, but as luggage is a governing factor the angler would either have to travel light or send his luggage by boat.

Wallaroo and Moonta, approximately 100 miles from Adelaide, are also excellent fishing centres, but here again the angler would have to rely upon the professional for excursions out to sea, although good fishing is often obtained from the jetties at these ports. Accommodation can be had in the town at the various hotels there, while a fairly good train service is run from Adelaide, the journey only occupying a few hours.

Corny Point at the toe of Yorke Peninsula is rather isolated and suitable only for campers; the same may be said about Coffins Bay, which is only reached by motor. Edithburgh is reached by steamer, and as it is the most important town in the district it can be made a centre for reaching the surrounding grounds. From here Marion Bay, Hardwick Bay and the grounds round the Althorpe Islands can be reached, where excellent catches can be obtained. The scenery is very picturesque and the sportsman who is also fond of shooting can have an ideal holiday in this spot.

Tackle

The methods employed for catching the numerous types of fish in these waters are varied according to the habits of the fish, and as whiting is generally the most sought-after fish, I intend to deal with this class first.

The rod should not exceed 8 ft. in length and one built of split cane is advisable. As this rod can also be used for other classes of fish it should be fairly stout, as the snapper and salmon often run to 8 and 10 lbs. in weight, and for successful handling a light rod would be out of the question, as apart from the fight put up by the fish, the strong currents of the sea have also to be considered.

Whiting being a fish that feeds principally on the sea bed, the method adopted for its capture is to tie one hook about 18 ins. above the sinker and two other hooks below the sinker at a distance of 12 ins. and 2 ft. apart respectively, and so arranged that any bite is felt directly along the line and not passing through the sinker.

The reel must be free running, one with a 4-in. check is generally used, while a No. 9 gut is used for a line, with a 6-ft. trace of No. 8 gut on which No. 6 hooks are tied. For bait, cockles are principally used, with squid and sandworms as a secondary lure; the cockles usually are secured locally and as a rule are not difficult to obtain. Whiting caught in these waters attain a length of 20 ins., although some specimens much larger have occasionally been caught, the limit size being 11 ins.; anything under that size has to be returned to the sea.

For snapper, trevally, groper, leather jacket, rock cod and red mullet the paternoster style of rigging is advisable, but as the sizes of these fish are vastly different the strength of the tackle must be varied accordingly. Snapper caught on the grounds off Adelaide average 3 to 4 lbs., but fish weighing up to 14 and 20 lbs. are often taken and the angler will have to consider this when actually fishing. The angler is here reminded that the minimum size that is permitted to be taken as far as snapper is concerned is 10½ ins. When fishing for large snapper a No. 12 gut line or 12-thread linen line should be used in conjunction with a No. 4½ bronze wire trace to which two No. 7/0 hooks are tied; but for smaller snapper a No. 1/0 or No. 1 hook is ample, the bait used most frequently being a fish bait or squid. As groper also run to large size the tackle used for snapper could be utilised in this case, and although there is a regulation minimum length of 18 ins. for groper, as a rule there is never much danger of the angler hooking one so small.

Trevally (which is a very sporting fish) averages 1 lb. in weight, but at Kangaroo Island these fish run up to 7 or 8 lbs. Cockles and squid provide the best bait for trevally and they are also trolled for by using a feathered lure, generally weighted sufficiently to keep it under the surface of the water to a depth of 3 ft. Any trevally under 8 ins. are returnable to the sea.

Leather jacket are the *bête noir* of some anglers because of the fact that they are very cunning in removing the bait from off the hooks without the knowledge of the angler, but nevertheless they are very appetising when cooked.

On account of their sharp teeth many hooks tied on gut are lost, and for this reason the use of very fine strong wire or long-shanked hooks is advisable. Should, however, the angler prefer to use gut he must be prepared to make short work of his fish and get it into the boat before the sharp teeth can do any damage.

Red mullet, salmon, trout and tommy ruff do not exceed 16 ins., but one of 10 ins. would be a fair sample, and the law prescribes that the minimum lengths of these fish are 6, 8 and 5 ins. respectively. Tackle suitable for these fish would be the same as that employed for leather jacket, and the common baits for these four classes of fish are cockles, squid and raw meat, while a No. 9 hook can be used for leather jacket and a No. 7 for the others.

Salmon and yellowtail are generally caught by trolling behind a slow moving boat, although salmon are also taken a few feet below the surface on raw horseflesh and squid, and for this purpose a No. 2/0 hook is employed tied to a No. 11 gut trace and allowed to sink in the water under its own weight.

When trolling for these two fish a feathered lure or spinner is the most popular method and either white or red feathers are the usual colours on the lure, which weighs from $\frac{1}{4}$ oz. to $2\frac{1}{2}$ ozs., depending upon the strength of the current and the rate of travel of the boat.

As these fish possess strong fighting qualities a 12-thread cuttyhunk line and a No. 3 wire trace will serve the best purpose. Salmon when full grown attain a length of 30 ins. and a weight of 12 lbs.; yellowtail as a rule average about 6 to 7 lbs., although larger specimens are occasionally caught, and many exhilarating tussles are experienced before they are landed in the boat. Salmon, which is actually a full salmon grown trout, has a minimum length of 8 ins., and for yellowtail one of 15 ins.

Snook also are fished for after the manner of salmon, but the best bait to use is a fillet of garfish or mullet, although feathered lures are often successfully employed. Around Adelaide grounds the snook average a length of 18 to 24 ins., but at Kangaroo Island and Backstairs Passage they average about 3 ft. in length. As a rule not many are caught below the minimum permissible length, which is 14 ins.

Garfish, which roam in shoals along these coasts, average about 12 to 17 ins. in length and are caught principally on the surface. For this reason two floats are used and are secured to the line by means of a double clove hitch tied by the line itself, the line being usually No. 9 gut or 9-thread linen line. The float nearest the rod is a feed float, which is made of wood and hollowed out to contain bran, the sides of the float having small holes drilled through them to allow the bran to be washed out by the action of the sea and so attract the fish.

About 6 ins. below the feed float is tied a smaller float or pointer which indicates when the fish bite; the pointer being generally made of wood or a quill. The trace which follows on from this pointer is of No. 8 gut and about 6 ft. in length on which is tied three hooks, one at the extreme end of the trace, and the other two at intervals of 18 ins. above it.

A No. 9 or No. 10 hook is used and the most successful bait are gentles with sandworms as a standby. Apart from the bran emanating from the feed float, a handful of bran is occasionally thrown over the side of the boat, as it were, *pour encourager les autres*.

As a rule no weight is used by the angler, but on occasions when the sea is inclined to be rough it is necessary to weight the trace with a small split shot to enable it to sink a little way beneath the surface.

The garfish, which is excellent eating and is caught in huge quantities, provides good sport and is also a very popular fish with jetty anglers. This fish has a minimum length of 8 ins. which is taken from the point of the upper jaw to the end of the tail.

The restrictions governing amateur anglers in this State are not very severe, and although the minimum lengths of various fish have been given in this article, generally speaking this only applies to professional fishermen. Amateurs when fishing from a jetty may take any sized fish, but this exemption does not apply when fishing from a wharf on the River Murray. Amateurs are also expected to return to the water all underweight fish in any case. For a full list of the various fish and their respective minimum lengths application can be made to the Chief Inspector of Fisheries.

In conclusion the reader's attention is drawn to the fact that while the foregoing sizes of lines, hooks, etc., are submitted as a guide variations may be found necessary to suit particular circumstances. Finally, any visiting angler either from overseas or interstate is made an honorary member of the South Australian Fish Protection and Anglers' Association where every assistance and advice will be given in order to make his stay as enjoyable as possible.

Big Game Fishing

Little fish are sweet, as the saying goes, but it is often wondered if the pleasure derived from landing a 3-lb. trout is to be compared with the thrill of gazing into the grinning jaws of a 1,000-lb. white pointer. And so, during the last ten years, the fascinating sport of big game fishing has sprung to the fore, and owing to the impetus given to this branch of angling by the visit of the late Mr Zane Grey to South Australia it looks like becoming a leading attraction to visitors from overseas.

Around South Australia the conditions are ideal for the big game angler as the waters of the sheltered gulfs teem with small fish on which huge sharks and other large fish prey, so that it is not to be wondered at that when visiting South Australia Zane Grey, after fighting a huge white pointer, expressed the opinion that he knew of no place in the world where this premier sporting fish is so numerous.

Throughout the full length of the South Australian coastline the opportunities for the big game angler are unlimited. The waters are alive with shoals of sporting fish, and as big game fishing is still in its infancy as far as this State is concerned, the possibilities are tremendous.

The white pointer, which is the main objective of the game fishers of this State, is sought right along the coast, and this savage monster, which puts up such a magnificent fight when hooked, runs to gigantic proportions; one white pointer shark which was caught by a professional fisherman measured over 20 ft. in length and was estimated to weigh over 1½ tons. Another smaller one also caught by a professional weighed 1,720 lbs.

Others taken on tackle specified under Game Fishing Rules have weighed from 761 lbs. to 1,334 lbs., while many more have escaped, although soundly hooked, by breaking the line.

Apart from the white pointer many mako and cocktail sharks have also been captured in these waters, and those interested in big game fishing look forward to the day when the first swordfish will be landed.

It is an accepted fact that swordfish do exist in these waters, as various sizes of swords have been found at several spots along the coast. The swords have been identified as those of the broadbill swordfish, and the reader who is acquainted with this fish—they possess magnificent fighting qualities—can easily visualise the sport in store for the big game fishers in South Australia who set out to catch them.

Actually the possibilities of capturing these fish have never been fully exploited, as sufficient excitement has always been gained when fighting the white pointer, so that a golden opportunity and a virgin field is offered to the seeker after swordfish.

During the summer season, that is from November to April, immense shoals of tunny and salmon range along the coast of South Australia. The salmon, which has been touched on previously, offers great sporting facilities when hooked, and the angler using light tackle experiences the thrill of a lifetime playing these fish. They run up to 12 lbs. in weight.

Yellowtail, sometimes known as kingfish, also provide good sport and are caught almost anywhere off the coast of South Australia. A strong fighter, this fish attains a weight of 80 lbs., while fish of 20 lbs. are by no means uncommon.

Tuna are fairly plentiful and form one of the main game fish sought after in this State; the largest one caught so far weighed 135 lbs. and was taken on a 12-thread line. Larger ones are still in the sea as can be amply proved by the broken lines of anglers.

Several also have been washed ashore, and one recently found weighed approximately 250 lbs., while at Glenelg, a popular watering place 6 miles from Adelaide, a huge tuna weighing over 800 lbs. and measuring 8 ft. in length, was found dead on the beach after the tide had receded.

There are numerous fishing centres from which the game fisher can operate. The best of these is undoubtedly at Port Lincoln, situated on a magnificent harbour at the south-eastern extremity of Eyre Peninsula. This beautiful seaside resort is distant from Adelaide about 150 miles and can be reached in an hour by plane or an overnight journey can be made by motor vessel. The accommodation is excellent and the game fisher is especially catered for; several boats are available varying in length from 30 to 46 ft.

Before the war the charges for big game fishing varied from £1 to 30s. per man per day, the price being inclusive of provisions, as it was often found necessary to remain at sea for several days. These vessels are all equipped with engines, sails and sleeping accommodation and are recognised as being thoroughly seaworthy.

It was from this port that Mr Zane Grey, during his visit to South Australia, conducted his operations and, to quote his own words when asked concerning white pointers, stated: "In Port Lincoln waters there are big sharks in abundance, and I am confident they will yield the world's record catch."

From Port Lincoln right along the coast as far as Thevenard are dotted many little islands which, apart from their beauty, provide in many cases safe anchorage for fishing boats, and among these islands are found all the varieties of big game fish common to this State.

Other centres are at Port Adelaide, Victor Harbour, Kingscote and American River on beautiful Kangaroo Island, Port Noarlunga, Rapid Bay and Second Valley, Port Pirie and Thevenard. Some of these places have already been dealt with in an earlier part of this commentary.

Port Pirie and Thevenard are the greatest distances from Adelaide, the former being 150 miles and the latter approximately 500 miles away. Transport is available by plane or boat to Port Lincoln and thence by train to Thevenard, while Port Pirie can be reached either by road, train or plane. The plane journey in each case takes only an hour or so, but the train trip to Port Pirie would occupy a good few hours. To reach Thevenard by road would be a long trip as the motorist would have to make a circuitous route to pass the top of the gulfs and would spend at least two days en route.

At all these places the Big Game Fishing Club has appointed official weight recorders and the anglers receive every assistance in recording the weights of their catches.

The best grounds out from Port Lincoln are to be found in the vicinity of Dangerous Reef, Thistle Island and William Island, also the Sir Joseph Banks Group, particularly Reevesby Island, Winceby Island, Spilsby Island and Boucaut Island. These places abound in seals and wild life. In these spots the largest sharks have been caught and have given many thrilling hours to their captors.

At Kangaroo Island the possibilities for big game fish are unbounded, and in the Backstairs Passage yellowtail are present in huge numbers as also in the upper part of Spencer's Gulf.

Those anglers who have fished for the huge sea bats to be found off the Florida coast in America will have plenty of sport with the huge rays that frequent the sandy sea-bed in the vicinity of American River, and as these grounds are fairly well sheltered they can be fished practically all the year round. Rays are quite numerous around these coasts and at Rapid Bay and Second Valley they are caught quite frequently.

At Thevenard and Ceduna and the waters opening into the Great Australian Bight are virgin territory and the scope for game anglers is unlimited in these quarters, while the same can be said of the grounds adjacent to Victor Harbour which stretch southerly towards Robe and Kingston and westward towards The Pages and Kangaroo Island.

As this branch of the sport is as yet in its infancy it can be readily understood that facilities for big game fishing cannot be arranged at a minute's notice, but arrangements can be made if the necessary steps are taken early enough.

In the vicinity of Investigator Strait and Thistle Island mako sharks occur in large numbers; the best centre to operate from for these grounds is Port Lincoln.

There is no fishing licence fee imposed in this State for big game anglers, neither is there any restriction placed on the number of fish that may be taken in one day. Visitors to this State who are members of a recognised overseas club are admitted as honorary members to the Game Fishers' Club of South Australia and therefore receive official recognition of their catches.

Other visitors may become country members of the club on payment of a small fee and thus become eligible to receive privileges, including the official weighing and recording of their catches.

The most favourable months of the year for shark fishing are January and February, but the season lasts from October to April, and even in the off-season excellent catches have been made. Tunny shoals occur from the end of November to the end of April, reaching the height of the season in January and February.

The question of these shoals leaving our waters has not yet been fully determined as odd fish have been caught in their usual haunts during the off season, whilst many shoals have been reported farther offshore. The distribution of these shoals extends from Flinders Island in the Great Australian Bight across the entrances of the two gulfs passing The Althorpes and Kangaroo Island on to Victor Harbour. In the south-east out from Robe and Beachport these fish and also sharks have been taken quite regularly by the professional, and while facilities are not yet available to the amateur in these districts the opportunities are there for the pioneer.

In all probability the visiting game fisher will have his own tackle but to those who have not, such as is necessary can be bought in South Australia at one or the other of the several sporting emporiums in Adelaide, or if preferred arrangements can be made to hire such gear as is required.

In the heavy class, such as the white pointer, the standard line used is a 39-thread, while for the lighter classes 12- and 6-thread are adopted. The usual type of lure is generally used, and as live bait is plentiful in these waters the game fisher need have no fear on that account.

For yellowtail fish bait, spinner and squid are commonly used and either a 1-piece

or 2-piece rod is preferred. The trace is generally No. 3 wire on which a No. 8/0 hook has been tied, and a 5-in. check duplex drag action reel is the popular choice.

Concerning tunny, similar gear to that employed for yellowtail may be used with the exception that a No. 6/0 tuna hook is preferred, while for rays a 24-cord line is advocated with a No. 5 wire trace, the same type of hook as that used for tunny also being most serviceable.

Sharks being such tenacious and spectacular fighters, stronger tackle is required and generally a 6½ in. or 6 in. Vulcan drag action reel is used with a No. M19 wire trace and a No. 13/0 Scamaster hook completes the outfit.

In conclusion, a résumé of the catches during the season from September, 1938 to September, 1939 (the last one before the outbreak of war) would not be out of place at this juncture.

The heaviest white pointer taken was caught off Dangerous Reef, and weighed 1,334 lbs., which constituted a world record. Other fish caught in this vicinity weighed 1,136, 1,195 and 1,291 lbs. respectively. The heaviest game fish taken was a blue pointer or mako shark and scaled 549 lbs., caught off William Island out from Port Lincoln, which created an Australian record for that season.

Next in order comes a 135 lb. tunny captured after a thrilling fight on a 12-thread line off Thistle Island and establishing a world record in its class, and in the 6-thread class a 47-lb. tunny was also landed. As this fish was the heaviest of its type taken on a 6-thread line it also established an Australian record.

Finally, attention is drawn to the fact that although the various places mentioned are the most popular ones around this coast there are numerous other places which space prevents me from mentioning, and to give a complete list of all the little headlands and bays which are known to the local people would be a task of the greatest magnitude; but any visitor coming to this State can easily secure for himself a copy of the many maps which are available and from these pick out all spots which he will no doubt hear about during his sojourn in Sunny South Australia.

FISHING IN NEW SOUTH WALES

Salt Water Fishing



THE coast of New South Wales faces the south-western Pacific Ocean, and extends in a south-south-westerly direction from latitude 28 degrees to latitude 37 degrees south—a distance of approximately 900 miles.

The sub-marine continental shelf parallels the coastline and lies at varying distances eastward. The coastal waters of New South Wales vary in depth from 20 to 100 fathoms, with reefs of rock, sand beds, and fish feeding grounds extending out to—and beyond—the continental shelf. The shelf itself is the southern extension of a sub-marine chain of which the Great Barrier Reef forms the northern portion in the tropical waters of Queensland.

The south equatorial current flows from north to south, the western stream of which flows along the east coast of Australia, turns eastward in the South Pacific Ocean and eventually turns north again along the west coast of South America, where it is known as the Humboldt Current, and so returns to the equatorial waters—a circuit of approximately 12,000 miles.

The coastal waters of New South Wales can provide the greatest variety of fishing to be found in Australia, and comprises big game, beach, reef, and estuary fishing.

Game fishing is carried out with rod and reel, the line size ranging from 6- to 39-thread. Game fish identified so far comprise black marlin, striped marlin, mako shark, yellowfin tuna, tunny, Spanish mackerel, and kingfish or yellowtail. Experts consider that broadbill swordfish should be found along the waters of the continental shelf, but so far none have been captured. Other big game for which heavy tackle is used comprise the shark family—most prominent of which are the tiger, grey nurse, black whaler, bronze whaler, hammerhead, thresher, and white shark.

For sharks and the larger game fish the usual line size ranges from 24- to 39-thread. For tuna, tunny, Spanish mackerel and kingfish the size of line ranges between 6- and 15-thread.

The method of fishing for game fish is invariably from a boat fitted with a swivel chair. The bait is either trolled behind the moving boat or a detachable float may be attached to the trace or line and the bait allowed to drift in the current.

Various methods are adopted in trolling the bait behind a moving boat. Some anglers prefer to troll the bait directly in the propeller wash, others favour a distance of some 60 ft. astern. Another method is by the use of a "marlin boom," which is a bamboo or wood pole rigged amidships at an angle of 45 degrees. The line passes from the tip of the rod to a special line clip fastened to the tip of the boom, thence back to the trace and bait. In this manner the bait is trolled clear of the wash of the boat and the motion of the boat and boom imparts a lifelike action, jumping and splashing, to the bait fish.



GROPER (*ACHAERODUS GOULDII*)
Male above, female below

When the strike occurs, the line is automatically released from the tip of the boom and allows sufficient slack line for the marlin to swallow the bait before it is hooked.

For big game the bait usually employed is bonito, salmon, or a small kingfish of 2 or 3 lbs. in weight. The bait is attached to the hook by piercing the head with a sail needle threaded with stout cord. The cord is knotted so that the mouth of the bait fish is closed, and then it is firmly tied to the curl of the hook. The latter lies free in front of the bait fish and allows it to troll in a lifelike manner without spinning in the water. Trolling speed is between 3 and 8 knots.

When drifting some anglers prefer to attach the bait by directly piercing it with the hook, others prefer the same method as used for trolling. A detachable float is used, either fastened to the top of the trace or at the required depth, and the bait is allowed to drift 100 ft. or more from the boat. Trace depth drifting is preferred for marlin and varies between 25 and 15 ft., according to the standard of thread line preferred by the angler. The line size governs the length of the trace.

Light and medium game fishing is almost entirely carried out by trolling an artificial lure.

The foregoing remarks may be taken as a general outline of the methods more commonly used in game fishing, whereas the following remarks will serve to identify the method with each kind of game fish.

Marlin, mako shark and hammerhead shark may be taken either trolling or drifting. The strike may be a sudden vicious rush or the bait may be followed for some time before the strike occurs. Mako and hammerhead sharks are hooked almost immediately, but with marlin, there is a considerable variation of opinion as regards the appropriate time to attempt to set the hook. This is largely a matter of luck, depending on whether the marlin has swallowed the bait or is merely holding it between its horny jaws. If too much time is allowed, the marlin may leap and throw the bait before the hook is set.

When drifting, however, it can be assumed that the marlin has swallowed the bait and the hook should be set as quickly as possible.

Drifting often brings many surprises, as the bait may be taken quietly and the first indication of a strike is a leaping marlin almost alongside the boat.

The mako shark, too, may act like the marlin, and swim down wind or current towards the boat after taking the bait, and may double back towards the boat after a long leaping run. One inflexible rule for this fish is to make sure that he is completely played out before attempting to bring him to gaff. He is the most dangerous and vicious of the Australian big game fish.

All sharks, including the hammerhead and mako, are taken by drifting or while the boat is moored to a slip buoy. The bait may be any of the previously mentioned types, used either whole or in fillets, but many anglers prefer a dolphin steak when it is obtainable. This is the most attractive shark bait. Portion of the dolphin carcass is hung over the stern of the boat and the slick from this is carried down current. All types of shark are attracted in this way, and it is possible for the angler to select the shark he wishes to capture. This has been done on numerous occasions.

The playing of a shark is a long and tiring process and needs physical strength and endurance on the part of the angler. A number of specimens of 1,000 lbs. and over have been captured, and the reader can gauge the work necessary to tire them sufficiently to bring them to gaff. They are powerful and vicious and expert handling is necessary when they are brought alongside the boat. However, some anglers have found that gentle

persuasion and an alert and experienced boatman have proved more successful than physical strength!

Tuna, tunny, Spanish mackerel, kingfish, salmon, bonito and tailer comprise the medium, and light, game fishing classes. Artificial lures are used almost entirely and are trolled in the usual manner behind a moving boat.

Tuna, tunny, and Spanish mackerel average 30 lbs., and are swift, hard fighters, and worthy opponents for any angler using from 9- to 15-thread line.

Kingfish (yellowtail) are found throughout the year and frequent the reefs and rocky coastline and estuary waters of New South Wales. They vary in size according to place and season, but average about 20 lbs. Specimens up to, and over, 100 lbs. have been taken. Kingfish of 3 to 5 lbs. make excellent marlin or shark bait.

Other sporting fish are schnapper, jewfish and teraglin, which are taken with cut bait along the reefs. At certain times of the year, jewfish, bream, whiting, flounder and flathead work along the innumerable ocean beaches, and may be taken with rod and reel or handline. They are also taken in the calm estuary waters.

The reader has, no doubt, noted that place names and seasonal times have not been given, for the reason that many of the fish mentioned work along the coast throughout the year, and a glance at an atlas will indicate that the climatic variations of temperate latitudes are relatively small. Wherever suitable feeding grounds exist, there the fish will be found.

The migrating fish, such as the marlin and tuna, are seasonal. Weather conditions from year to year appear to influence the time of their arrival and departure—sometimes a few weeks earlier or later than usual. Most marlin are taken during the months December to March.

Broadly speaking, the game fishing season of the mid-coastal region of the State extends from October to the end of March.

New South Wales, in common with most other parts of the world, is suffering a housing shortage, but under normal conditions accommodation is obtainable at any of the coastal towns and villages, varying with the size of the town or village.

Prior to the 1939-45 world war a few suitable boats only were available at some of the more favoured inlets. The present tendency is for an increasing number of professional boat owners to fit them out for game fishing. However, it would be well for anyone contemplating game fishing in New South Wales to write to the Honorary Secretary of the New South Wales Rod Fishers' Society, which is the amateur body in that State, for help and guidance in planning a holiday.

Fresh Water Fishing

New South Wales is the most favoured trout fishing area in Australia. The length of streams is difficult to convey, and before attempting to describe any streams a brief description of the terrain is necessary.

New South Wales contains one mountain system, parallel to the coast line, which runs in a northerly direction, approximately 900 miles long and averaging 100 miles wide. The highest mountain is Mount Kosciusko in the south, 7,328 ft. high. All rivers rise in this mountain system and fall into two classes, those draining the eastern fall and flowing into the Pacific Ocean, and those draining the western fall which ultimately flow into four main rivers travelling across New South Wales towards the western boundary, turning south and flowing into the Murray River, which enters the South

Pacific Ocean at Adelaide in South Australia. Due to the proximity of the mountain system to the coast the rivers draining the eastern fall are short and in most cases have substantial falls at one point or another, so that any trout making their way downstream are trapped below the falls and are unable to return to the higher reaches, and, due to the water temperatures at the lower altitudes, die. On the western fall the rivers travel approximately 1,000 miles at a low altitude and water temperatures are higher than on the eastern fall. It has, therefore, been found that the trout are virtually landlocked and live their full life cycle within the mountain streams.

The mountain system consists of ridges, spurs, plateaux and valleys, and every type of stream from rills to rivers of approximately 100 ft. wide can be found. No attempt has been made to measure the fishable area, but in this mountain system streams carrying rainbow or brown trout run into some thousands of miles and provide every type of trout fishing.

The northern section of the area is least known, and introduction of trout has not been carried on at the same intensity as in the southern area. The writer spent a few days in this area in 1947 and an afternoon's sport brought 24 rainbow trout up to 2 lbs.

The central area has been stocked with brown trout, but due to the incidence of rainfall the maintenance of stock in many streams proves difficult.

The southern area is that which is most favoured and both rainbow and brown trout are found, according to the stream fished. Accommodation is more readily obtained in this area and in many cases is found adjacent to streams or in close proximity to them.

The trout fishing season commences on 1st October each year and ends on the following 30th April.

A number of comments on particular streams in the southern area are set out hereafter but as a guide to the streams in this area the following better known ones are mentioned:—

Murrumbidgee River rises adjacent to the coast of New South Wales, flows in a westerly direction through the mountains, across the western plains, and enters the Murray River in western New South Wales. Trout are found in the upper reaches of this river and its tributaries. Better known tributaries of this river are Brebo, Umeralla, Badja, Tumut, Goodradigbee.

Murray River rises beneath the western slopes of Mount Kosciusko, travels westerly and is the boundary between New South Wales and Victoria.

Snowy River rises beneath the eastern slopes of Mount Kosciusko and travels southeasterly across the border into Victoria, thence into the Pacific Ocean.

Name of stream—Murrumbidgee River at Kelly's Plain via Rules Point.

Best method of fishing—Wading or bank fishing both dry or wet flies.

Type of stream—Swift running with still pools and rapids.

Type of trout—Rainbow.

Average size of fish taken out— $\frac{3}{4}$ -lb. average, up to 5 lb. occasionally.

Best tackle to use—9 ft. 6 in. rod; casts, 2x; flies, Hopper Hackle, Jock Scott, Coachman, any small brown or black flies.

Accessibility—Road via Tumut to Rules Point, thence 12 miles bush track.

Accommodation available—12 miles to nearest accommodation house at Rules Point.

Description of fishing conditions—Clear banks.

Best time to fish stream—November–December, March–April.

Fishing Conditions in the Upper Murrumbidgee

The section of the river referred to in these notes commences at the Yaouk Gorge, about $1\frac{1}{2}$ miles downstream from the bridge at Yaouk and from thence upstream to the point where Paytens Creek joins the Murrumbidgee—a total length by river of about 10 or 11 miles.

Throughout this length of river more than 50 per cent is made up of good fishing pools, some up to 600 yds. in length with deep areas, some with wide, shady back currents, others narrower with a fair current constantly flowing. Between the pools are cataracts and fast runs. In the river stretch herein described the stream goes through two or three narrow valleys where the angler must leave the river bank and pass along the hill slopes to avoid the hard going.

In most places the water (even at summer low level) is too deep or too fast to permit of wading.

Although some of the large pools can only be fished properly by entering the water, in most parts fishing from the banks is satisfactory and convenient. In order to cover all the water the angler must cross the river. There are a number of shallow fords.

The fish are rainbow, except for an occasional brown trout at the lower end of this section where the river passes through the Yaouk plains.

We always fish with wet flies, using 5-oz. rods, 8 ft. 6 in. to 9 ft. in length. The best flies appear to be Coachman, Governor, Red Ant, English Jock Scott, Peveril, March Browns and Coch-y-Bondhu.

In the last two seasons there have been a large number of fish rising freely of from 9 ins. to 14 ins.

The largest caught by my party in the last two years was $3\frac{1}{2}$ lbs., and a good number between 1 lb. and 2 lbs. were taken. The largest trout I have heard of having been caught this season (1946/47) weighed $4\frac{1}{2}$ lbs. and was taken below the bridge at Yaouk.

The waters near Yaouk (embracing about 3 miles of the stream) are easily accessible by road from Adaminaby. The waters from there to Payten's Creek are approachable by car to Platypus Lodge over a rough bush track about 7 miles from Yaouk. From Platypus Lodge to Paten's Creek is accessible only by riding or walking.

There is no accommodation available to anglers on this stretch, but there are good camping sites. If the camp sites are much upstream beyond Yaouk supplies become a problem because the hills are steep and rough.

That part of the Upper Murrumbidgee described here appears to be in good condition for fishing from early December to the end of March. Discoloration of the water will keep the fish down, but it is unusual to have much rain during the summer months.

There is excellent dry-fly fishing on the Snowy River in the vicinity of Mount Kosciusko during the summer months from November to the end of February. The weather after that is usually too unsettled for good fishing.

The water I recently fished on was at Island Bend and Long Corner on the Snowy River. These stretches are accessible from the Hotel Kosciusko on horseback along a bridle track, a distance of 5 miles.

It is preferable to wade, as the ti-tree and scrub is very dense. Both rainbow and brown trout are taken. Ten years ago the brown trout were never caught except in the lower reaches of the Snowy well below Jindabyne.

This season during January the only fly they really took well was a large Coch-y-

Bondhu. Other seasons they usually take a medium size Coch-y-Bondhu, March Brown, Claret Hackle, Grass Hopper Hackle, or Red Ant.

The average size fish is 1 lb. The largest rainbow caught during 1946/47 was 4 lbs., and a brownie 4½ lbs. Quite a number of brownies were taken from 2½ lbs. to 3 lbs. The fish in these waters are very shy, and 3x to 4x casts must be used even in the rapids.

There is also good fishing in the Moonbah River near Jindabyne, and on the Threadbo River; the latter is a small edition of the Snowy, but the Moonbah is a small, rather sluggish stream and stocked mostly with brown trout.

Good trout fishing is available in the Kosciusko district, from Jindabyne as a centre. Jindabyne is 35 miles by road from Cooma, which is 260 miles south of Sydney by main line railway.

Four rivers may be fished from it—Snowy, Threadbo, Moonbah and Eucumbene, but transport (car) is desirable.

The area of fishable water is unlimited, wading is normal, though bank fishing is possible in many places. All types of water are met—broad, large pools, swift running as well as narrow rivers.

Both rainbow and brown trout are present. Light 9 ft. 6 in. trout rods are adequate; casts tapered to 3x or 4x; dry flies—cockies, red and black ants, red-tailed flies of any variety, grasshopper. Fish range from ¾ to 2 lbs., occasionally larger up to 3 and 4 lbs.

The Moonbah and Eucumbene are best fished early, the others yield fish throughout the season, which is from October to April.

Spencer's Creek, 24 miles from Jindabyne, yields very large fish up to 6 lbs., but only to a skilful angler.

Accommodation is limited and should be booked in advance; Jindabyne Hotel and The Creel, 4 miles out.

There are few mosquitoes and midges, flies which may be troublesome can be kept off by fly repellants. The climate is cold at the beginning and end of the season; in the middle season it may vary from extremely hot to very cold; clothing for either condition should always be taken. Fishing in one or other of the rivers is usually possible, in shelter from any strong winds blowing, and it is seldom that all of the rivers are affected by rain at the same time.

Name of stream.—Goodradigbee River; length, 6 miles of the upper reaches.

Best method of fishing.—Mostly wading. Some pools where cover is available bank fishing is advisable; both dry and wet flies are successful. We found that wherever possible it is better to use dry fly, but of course in turbulent water where most of the fish are caught the dry fly becomes in effect the wet fly.

Type of stream.—Swift running, rocky, chain of still pools, and rapids.

Type of trout.—Rainbow.

Average size of fish taken out.—The average size of the fish would be 12 to 13 ins. We fished the stream this year from 14th to 28th February. There were about four fish of 1½ lbs. weight, and about forty fish reached up to the ¾ to 1 lb. mark. There appeared to be other fish ranging from 9 to 12 ins. We did not keep count of these, but there would be an average of at least ten a day thrown back by each fisherman.

Best tackle.—The weight of rod, 4½ to 5½ ozs.; cast, 4x. In very rocky pools probably a 3x would be better. We found the best flies to be in the following order: Coachman, Governor, Royal Coachman, Red Palmer and Coch-y-Bondhu.

Many other flies were tried, and it appeared to us that any fly with a ginger hackle was satisfactory, more especially if the fly had white wings.

Accessibility.—It is not accessible to the general fisherman, although the road is quite fair, but passes through private property.

Accommodation available.—I would say that there are no available sites as it is all private property, with accommodation only for people approved by the owner.

Fishing conditions.—Sometimes after rain the stream is high and fishing becomes difficult, and when the water is normal practically the whole stream could be waded with the exception of one or two places where a detour is necessary. Some parts of the stream are very rough, and not suitable for elderly people. Most of the banks carry scrub and rocks.

Best time to fish stream.—There does not appear to be any general rule as to the best time of the year. Some years it will be found the early part is more successful or, for no apparent reason, the middle, or the latter part. From inquiries made, this year the fish seem to have gradually improved. In the early part of the year the fish were smaller, and it seems to be that they are gradually increasing in size. From the information of our host, we gathered that no fish over $1\frac{3}{4}$ lbs. had been taken this season. Previous season our party took one fish 3 lbs. 5 ozs., and three fish over $1\frac{1}{2}$ lbs., although the climatic conditions seemed the same, the river the same, yet this year the cormorants were much fewer. We could not find any reason for this, although we noted that the fish generally appeared to be feeding on a green weed, and contained very little insects in their stomachs.

Moonbah River

Length 12 miles. The lower 2 miles of this river before it flows into the Snowy River is very rough and not worth while fishing. Fishing should start $\frac{1}{4}$ mile below the bridge on the Jindabyne-Dalgetty Road, 9 miles from Jindabyne. From this point upstream one has at least 10 miles of some of the finest dry-fly water in Australia.

The Jindabyne-Ingebara Road crosses this stream about 5 miles upstream from the Dalgetty Road Bridge and then follows the stream for many miles upstream.

As the stream is not very large, wading is the most suitable way of fishing it. The fish feed mainly on hoppers and dry fly is essential.

The stream is slow moving with nice runs under banks and some weed patches which form ample cover for trout.

In the lower reaches there are mainly brown trout, an odd rainbow in every pool. In the top 3 miles there are mainly rainbow.

Average size of fish would be $1\frac{1}{4}$ lbs. This includes a number of 2-lb. fish and an odd fish up to 3 lbs. 10 ozs. taken every year.

Rod must be light. Length, 8 ft. 6 in. to 9 ft. 6 in. most suitable. Casts should be 3 yds. long and tapered to 3x or 4x.

The best dry flies are medium- and large-sized Smart's Favourite, Coch-y-Bondhu, Greenwell's Glory, Orange Quill.

From Sydney go to Cooma by train, then Balmain's service car to Hotel Jindabyne or The Creel at Threadbo.

The stream is 9 miles from Hotel Jindabyne and 15 miles from The Creel by good car road. Jindabyne Hotel is on the Snowy River which provides excellent fishing and The Creel is on the Threadbo River which is an excellent dry-fly stream containing

brown and rainbow trout. The Moonbah flows mainly through open plain country without a tree or bush for miles, and is an exceptionally easy stream to fish. The best months to fish this stream are November, December and early part of January.

Upper Tumut

I refer to that portion of the river between the junction of the Tumut and Happy Jack River downstream, to 3 miles below the junction of Clear Creek and Tumut River.

The approach to this stream is most difficult, owing to the mountainous nature of the country. It is possible to get within $\frac{1}{4}$ of a mile of the river by motor, by following the 9-mile track from Kiandra, or by motor by following the 8-mile ridge from Kiandra via the 3-Mile Dam; but 2 miles would be the closest point which could be reached, and leaves a very hard walk for the remaining portion.

This track is best approached by horseback, as there is a dray track right to the river, and small flats which are good grazing for horses. There are several other tracks on to the river upstream at Duffer Gully and Temperance Creek.

The stream itself is a rapid flowing river, fed by snow water. There are a series of deep pools with fast runs between. Until about mid-December in the average year these runs are almost rapids, but as the river reaches summer level they become great fishing holes.

The walking on this stream is very rough going and has to be waded very frequently to avoid cliffs of rock which come to the water's edge on one side and then the other. I would strongly advise anglers to wear a strong leather boot, soled with felt in this stream, and not waders, as one often has to wade waist high in water. Boots with nails in the soles are also dangerous owing to the smooth stones on the bottom.

I do not consider this stream capable of carrying a great number of fish owing mainly to the barren class of mountain which it flows through, but that apart, it really is an angler's paradise, owing to the fact that it is almost maiden water; for example, some of my catches have been: eight trout in 4 hours' fishing, totalling 24 lbs., five fish in 4 hours, 16 lbs.

The average fish runs about 3 lbs.; my largest trout 6 lbs. The stream is stocked with rainbow trout only.

I have found wet flies most effective during morning and early afternoon; late afternoon I have had wonderful results from dry flies.

Name of stream.—Goodradigbee River.

Section from:—Bridge at Wee Jasper to Sandy's Flats, about 12 to 14 miles south, covering junctions with the following creeks: Micalong, Nottingham, Clear Hills Creek and Limestone Creek.

Best method of fishing.—Bank with some wading. Dry flies in later afternoon and evening; otherwise wet flies.

Type of stream.—Depends upon season, but Goodradigbee mostly fast flowing, especially in its narrower parts. There are many deep holes both large and small, also ripples; to some of them the flow is very swift.

Type of trout.—Mostly rainbow, but there are also a few brown and what appears to be a cross between the brown and the rainbow. This species are very light brown in colour with black speckles.

Average size of fish taken out.—From 1 to 2½ lbs.

Best tackle to use.—Light rod about 6 ozs., 8 ft. 6 in. length. Cast lengths preferably 8 to 9 ft. Medium size flies with medium hooks of the Coch-y-Bondhu or Coachman type are very suitable.

Accessibility.—By car or by train to Yass, thence service car to Wee Jasper.

Accommodation.—The only accommodation is that which can be obtained at farm houses, which is difficult. There are many ideal camping spots; however, if good fishing is desired, enthusiasts must be prepared to make long walks daily. The really good fishing is about 6 miles south of Wee Jasper and farther upstream.

Description of fishing conditions.—The country is fairly mountainous and in some parts scrubby, but mostly the conditions are very good, the river being fringed on either side by the well-known river oaks. The country throughout may be described as enchanting.

Best time to fish stream.—Middle of November till late December and February, March, April. (Over the Christmas period, Wee Jasper is invaded by hordes of campers, many of whom are not very particular as to the means by which they obtain their fish.)

FISHING IN VICTORIA

Inland or fresh water fishing in Victoria is better than in any of the other mainland States, but for trout fishing it cannot compare with Tasmania or New Zealand.

Victorian rivers are divided into two sections by the Great Dividing Range which runs east and west through the centre of Victoria, the eastern end terminating in the Alps, and Australia's highest peak, Mount Kosciusko, is just over the Victorian border in New South Wales. All waters north of the Divide drain into Australia's largest river, the Murray, which forms the boundary between New South Wales and Victoria, and then passes through South Australia to drain into the Southern Ocean. Rivers south of the Divide flow into the Southern Ocean direct.

The Murray River and its tributaries are the home of the Murray cod, which, although not a particularly good game fish, is certainly a first-class edible variety, and specimens have been caught over 100 lbs. in weight. This system also has the grunter and the yellowbellied perch, the macquarie perch, and the imported redbfin English perch; and in the headwaters both brown and rainbow trout. A small variety of native blackfish, eels, and Murray crayfish complete the list of what an angler can catch in this area.

The best trout waters are the Murray from the Hume Weir upstream, and its tributaries, the Indi, and the Swampy, the Kiewa, the Goulbourn from the Eildon Weir upstream, and its tributaries the Hawqua, Delatite and Jamieson.

South of the Divide most rivers have a larger and better type of native blackfish, redbfin perch, brown and rainbow trout, and, of course, eels. A few tench and carp have also found their way into many of the streams. The best trout fishing is in the headwaters of the Snowy and the Yarra.

There are also in Victoria a number of inland lakes and reservoirs which provide good angling. Notable among these is Lake Bullen Merri in the western district, which has produced both rainbow trout and quinnnet salmon over 20 lbs. in weight.



PLATE 62

SNOEK (*THYRSITES ATUN*)
RABDAGOTTA

SOUTH AFRICA

There is some fine estuary and coastal fishing in the eastern portion of the State. Marlo, on the mouth of the Snowy River, Mallacoota Inlet, the Gippsland Lakes at Lakes' Entrance, and the Tambo River are all fine black bream waters. Other fish caught are blackbacked salmon, and estuary perch.

On our centre coastline, near Melbourne, fishing is mostly done in Port Phillip Bay and Western Port Bay. Good whiting and snapper are the main attraction, but plenty of flathead, mullet, yellowtail, rock cod, and other types are caught in season. Our western coastline produces two good fishing grounds—in the estuaries of the Hopkins River at Warrnambool, and the Glenelg River at Nelson. In addition to bream and estuary perch, etc., kingfish are caught up to 100 lbs. in weight, an excellent sporting fish.

Victoria has no good big game fishing grounds, and all our anglers go to the New South Wales south coast, which is just as near to Melbourne as it is to Sydney.

ANGLING IN NEW ZEALAND

INTRODUCTION

New Zealand is a pocket world, which packs in its small compass the equals of all the world's scenic marvels. Thermal regions, lofty mountains, glacial and volcanic lakes, broad rivers and snowfed torrents, placid sheets of water and thousands of winding sea inlets, are closely spaced throughout the thousand miles length of the two islands.

From the fisherman's point of view distance is annihilated; every population centre from city to hamlet has innumerable well-stocked streams or lakes within walking distance or a maximum hour's motor run.

The title of Zane Grey's book about New Zealand, *Anglers' El Dorado*, is truthful. The climate is one of the most temperate in the world, its sunshine average about equalling that of Italy. There are no snakes, venomous insects nor dangerous animals; camping is entirely safe anywhere.

In the numerous places that have grown into fishing centres there are good hotels and plenty of well-appointed fishing lodges; in the main provincial capitals and in the four main cities the hotels are modern and comfortable. Wellington, for instance, has five large hotels with private bath to each bedroom and other up-to-date service appointments. In such towns as Wanganui, Hamilton, Timaru and other large country towns, the hotels are of world parity.

New Zealand is also thick with motor camps; as the motor ownership is somewhere round about one car to every five and a half people, motor holidaying and caravanning is almost a universal medium. The motor camps have hot water and cooking facilities, many of them plenty of huts, and very often telephone services, gas rings, etc. All fishing waters are free, and the licences are so cheap that fishing is a general recreation since the supply of good fish is more than equal to the demand.

Overseas anglers are welcome, and advice is readily given by the various acclimatisation societies, anglers' clubs, rangers and the Government departments. New Zealand might be said to be a fraternity of fishermen, and New Zealanders treat every brother angler as a member of the lodge.

A Glance at History

Five per cent approximately of the people of New Zealand are Maoris with whom we live in equality and amity. Ninety-four per cent are of British stock, and less than one per cent were born in foreign countries.

It is a romance unique in the annals of emigration that the racially purest stream of emigrants ever to leave the British Isles should have gone to the country which in all the earth most resembled the homeland they had left.

As the colonisation of New Zealand was well planned, and the selection of emigrants carefully made, it meant that a cross section of the "Old Country" moved in, with all the traditions, habits, sporting instincts, and other characteristics of the homeland.

Naturally, the early pioneers included hundreds who had memories of rod and line, and happy times with fly and minnow in the rivers and lakes of the land they had left. They found themselves in a country rich in all kind of waters—tidal rivers, hillside streams, winding brooks, swift torrents, and lakes of every type and beauty. With the exception of the eel and a few tiny "kokopus" and other wee fish, the waters were virgin; there were no sporting fish.

As far back as 1868 the Provincial Government of Otago tried out an importation of 100,000 salmon ova; Canterbury, Southland and Auckland followed; in 1868 the brown trout was brought in from Tasmania; in 1876 the quinnat salmon was successfully established; in 1883 the rainbow trout came in, and this fine fighting fish is now found everywhere.

During these first periods, brown and rainbow trout grew to phenomenal sizes, and fish from 20 to 30 lbs. weight were often caught. However, the fish multiplied with such profusion that the food supplies became insufficient, and weights began to fall off. The Government, co-operating with the acclimatisation societies, tackled the problem with resolution and heavy netting produced satisfactory results. Years of intensive work, care and research have produced exciting results. The sport of fishing is a community matter in New Zealand and there has been splendid and productive effort on the part of the Government Department, fishing clubs, acclimatisation societies, and the public—an unsurpassed illustration of co-operative achievement. It is claimed that today more 5 to 10-lb. trout are caught in New Zealand fishing waters than in the rest of the world put together.

I have seen also three working men, who have borrowed for the week-end the delivery van from the store where they worked, standing behind 12 salmon from the Rangitata River, the highest weight being 27 lbs. and the lowest 14 lbs.

Our pioneers established fishing as a sport throughout New Zealand's 1,000 miles of length. In fiords grander than those of Norway, in lakes ringed by ice-capped mountains, in sweet tarns and shady pools, in meadow brooks, and brimming river mouths, in thermal regions where a fish can be caught in a cold freshet and swung on the rod to cook in a boiling pool, in a great variety of settings of scenic wonder, there are fish in quantities to realise the best dreams of the angler.

Licence Fees

The only charges for fishing in New Zealand are these:

The general charge is 25s. for the whole season, 15s. for the half season, 10s. for one month, 7s. 6d. for one week, and 5s. for the day; this includes trout and salmon; there is no charge for big game fish.

For the two special fishing areas, the charges vary a little. For Rotorua, the annual fee is £1, and for one day 3s.; for Taupo, the season costs £6, and for one week £1, while the charge per day is 7s. 6d. Taupo, of course, is extraordinarily rich in good fish.

For women and young people, the charges are at a sharply reduced ratio.

The limits are liberal: twelve fish per day in Rotorua, and Taupo, and twenty in the rest of New Zealand. Fish which do not exceed 14 ins. must be returned to the water.

*TROUT FISHING***North Island**

Practically every river, lake, stream, brook or watercourse in the North Island contains trout of some kind.

But there are two great centres, Rotorua and Taupo, where the fishing is of superlative quality. The fishing season in general in New Zealand opens on 1st October and closes on 30th April, but in the two special districts the season extends from 1st November to 14th May.

The Taupo and Rotorua areas are under the control of the State Department of Internal Affairs, and the Conservator of Fish and Game is in control. His headquarters are at Rotorua, and his rangers work throughout the district. There are offices at Taupo, Turangi, Whakatane and Tuai, and visiting anglers will be readily "put wise" to the conditions prevailing. Fish have their own habits and wilfulness, and all sorts of happenings produce deterioration in size and quality in some districts and improvements in others. It is a common experience for an angler, who has been to the district before, to have made his plans to fish certain waters; often he has had advice from friends. It is a sound idea to make a call on one of the rangers before setting up camp or making plans to stay at an hostel. Although there are no "private waters" in the English sense in New Zealand, there are scores of licence-issuing agents in both Rotorua, the neighbouring towns, and at Taupo and Tokaanu. These folks will also be found full of information as to the latest developments, and they also carry copies of all regulations dealing with fishing.

The idea of these two special paradises for fishermen is to make visitors welcome, and to see that good sport is obtained. Remember also that the best fishing is got in these regions towards the end of the season; often fish are inclined to be smaller in the summer months of December and January.

Rotorua

Rotorua is a region of thermal wonders, whose variety is unparalleled anywhere in the world. The town is substantial—population 7,500—and there are hotels and accommodation houses in plenty, as it is possibly the most frequented holiday resort in New Zealand. The spa buildings are modern, and the thermal baths and hot swimming pools include the famous Blue and Ward Baths. These have modern appointments and a wide range of thermal waters.

The place is rendered more fascinating by the Maori population, whose charming manners, loyally cultivated native arts, and outstanding musicianship, provide happy hours for all visitors.

The well-stocked shops are of metropolitan standard, as is usual with the provincial centres of New Zealand. Rotorua district is a wealthy dairying area, and great progress is being made in farming pursuits by the Maori population in an interesting experiment which is proving most successful. Apart from fishing, Rotorua is a place where all sorts of sport are catered for. Bowls, tennis and croquet lawns are in great variety, and there are two golf links of which one, fringed by thermal wonders, is world famous.

However, the emphasis is on fishing; every second inhabitant in the whole region takes some part in the sport, and the supply of good fish is continuous.

Lakes

This thermal region is rich in lakes of all sizes, enclosed by wooded heights, and possessing many beaches. Trawling with spinners is popular, but the usual method is to cast from a rowboat anchored offshore. The principal lakes are Rotorua, Rotoiti, Okataina, Rotoma, Rotoehu, Tarawera, and Okareka. On these lakes boats and launches can be hired readily at reasonable prices.

The Ohau Channel, connecting Lakes Rotorua and Rotoiti, also provides good fishing, and various streams feeding the lakes are equally good. The best of these are Utuhina, Ngongotaka, Waiteti, Te Awahou and Humarana. These are crystal clear and none more than a twenty minutes' drive from Rotorua town. The Kaituna River with the picturesque Okere Falls runs into Lake Rotoiti and is 12 miles from Rotorua.

A paved road leads to Whakatane, 58 miles north of Rotorua. Here and at Teko, 42 miles from Rotorua, there are splendid fishing streams, headed by the Tarawera, Rangitaki, Whakatane, Waimana and Waioeka. These all flow north to the Bay of Plenty, are well stocked, and the general fishing conditions are the same as for the lake streams at Rotorua. The hotels are comfortable and well appointed. Less than 100 miles from Rotorua is the scenic wonderland of Lake Waikaremoana with the Upper Rangitaiki and Whirinaki Rivers on the way. The fishing is good here and the surroundings beautiful. The Government hostel at Waikaremoana is well equipped, there is accommodation at Murupara, half way from Rotorua, and there are several well appointed fishing lodges on various streams on the Kaingararoa Plain. Boats and launches are available at a low tariff. These areas are all under the Rotorua district's supervision, and full information can be obtained from the Conservator's offices, from the rangers or from the various licence-agents.

Taupo

Lake Taupo, 25 miles by 17, situated heartwise in the middle of the North Island, is the largest inland sheet of water in New Zealand, and in the words of one visitor—"large as it is, the trout jostle one another." It is exceedingly beautiful, and surrounded by many natural marvels. The lake shore is dotted with small hot springs, and the water is very clear. Lake Taupo and the streams running into it contain the best rainbow trout anywhere in the world.

The township has good hotels, with their own spout baths and other thermal bathing facilities, the waters containing alum, sulphur and oils. The Huka Lodge, 4 miles away, has splendid separate hut accommodation with a central dining-room and rest lounge. The Wairekei Hotel has recently been taken over by the Government, and is a large and well equipped hostelry, conveniently situated to one of the world's greatest collections of wild and bizarre thermal wonders. There are also within easy access the far-famed Huka Falls and the Aratiatia Rapids. All streams are rich in trout, and streams are innumerable. The Waikato River outfalls northward from the lake, and there are many tributaries. At Taupo township the population is dedicated to fishing. New Zealanders from all parts of the North Island own bungalows and lodges in Taupo and along the lake shores there are scores of privately-owned launches, as well as launches for hire. Fish wisdom here is part of the local make-up, and no one is more welcome than the visiting angler.

All along the lakeside from Taupo township to Tokaanu, 35 miles, there are fishing lodges, camps and hostels. The most popular system is the separate cottage or hut,

set in gardens, with central dining and rest lounges. Electric lighting and heating are in all huts. Skilled folks tie flies by the thousand, and it is best to use these local products. The principal streams are the Waitahanui, Hatepe, Tauranga-Taupo, Wairakei-Waikato, and, of course, the well-known Tongariro, which runs into the southern shore and is possibly the finest trout fishing river in the world. Fish of over 20 lbs. have been caught in the lake itself, but 8- and 10-pounders are common in the Tongariro River. There is a comfortable licensed hotel at Tokaanu, and several well appointed fishing camps.

Taupo is 1,200 ft. above sea level, and the air is dry, and the climate excellent.

North Island Outside Rotorua and Taupo

It must not be supposed that the two prize districts, Rotorua and Taupo, monopolise the good fishing of the North Island. Any gazetteer of place names of New Zealand mostly has, after the population and situation of the town or hamlet, "Good Fishing Near By." For instance, the whole length of the Waikato River for over 200 miles teems with trout, as do all its tributaries. 50 miles or so south of Auckland there are the Mangatangi (Babbling Brook) and Mangatawhiri (Winding Stream) on each of which there are 20 miles of really splendid fishing. New Zealand's Rhine, the Wanganui River, and its tributaries are also well stocked. Here fighting brown trout are found along with the rainbow; there are modern towns and hotel accommodation (Wanganui's largest hotel has all rooms with private bathroom) and the roads are first class. In the vast National Park and the Raetihi district ski-ing gives way in the summer to trout fishing. Strong tackle is needed here as the streams are clear and very flat.

All through the rich, town-dotted provinces of Taranaki, Manawatu, Hawke's Bay, and Wellington, streams teeming with trout are everywhere. As one goes south, brown trout become more plentiful, and fly fishing is indicated. Waders are vital, for all these streams are shallow and mostly fairly swift-flowing.

No. 12 hooks, cast 1, 2, 3x gut, and all the customary flies are in use—March Brown, Red-tip Governor, Greenwell's Glory, Coch-y-Bondhu, Hardy's Favourite, Twilight Beauty, and so on. In some areas minnows and wet flies are successful.

A wandering pilgrimage by car would give wonderful results in sport and pleasure. There is little need to take camping gear, as towns with good hotels are plentiful, and the distances between centres are short. The main roads are paved, and one can always be in the next town between breakfast and "elevenses." The hotel people, and, in fact, a goodly proportion of the population, will direct you to a "good spot." Be reminded, too, that all the time you pass through ever changing but always excitingly beautiful scenery. In the southern part of the North Island the early season fishing is good, making a prelude to a later descent on the treasures of Rotorua and Taupo.

South Island

The South Island is about the same size as England and Wales; it is more compact of outline than the North Island, and its physical features are all on the massive scale. It has a long glittering chain of lofty Alps, glacier-gouged fiords and lakes, and its snow-fed rivers are swift and clear. Its plains cover thousands of square miles of rich farmlands, and there are miles of rolling pastoral downs. The lakes are ringed with jungly heights, and snowy mountain caps are visible from all parts; a large portion of the South Island is given up to wild life, there being over 3,000,000 acres of national parklands still mostly in virgin forest.

The roads everywhere are excellent, and, as with the North Island, the distances between beauty spots are small; for instance, three hours on a flat roadway takes one from the impressive modern city of Invercargill to the mountain-framed glories of Lake Te Anau.

Good fishing is universal, and the proportion of brown trout is higher than in the north; however, in the crystal rushing streams of the south, the brown trout is a fighting fish, leaping many times when hooked. It may be mentioned that in the tidal reaches of rivers, sea-run brown trout can be taken at night, and sometimes run to 15 lbs. weight.

Nelson, capital of the province of the same name, and Blenheim, capital of Marlborough province, are good centres from which, within easy distances, many streams can be reached abounding in good fish. The hotels are numerous and good, and in this region, and right down the West Coast narrow littoral to the Franz Josef and Fox Glaciers, there are lovely small lakes, all teeming with trout. In addition to the many good hotels, camps can be pitched at almost any clear space along river and lake banks. Plenty of wood is available, and camping gear can be bought at any of the towns. The rivers are mostly short and swift flowing, and fly fishing (with some minnow) is the main sport. Rivers are all wadeable, but some lakes need boats which are procurable from nearby hotels.

The Canterbury Plains present rather a different spectacle. Here and there, there are quiet flowing streams such as the Avon, and the lower reaches of the Selwyn. There are fishing settlements near many of the rivers and near the pretty towns of Temuka and Geraldine. These have grown to the dimensions of pleasure resorts, and are used by anglers who want a permanent week-end habitation. Twilight on the brimming Selwyn reaches will often find a hundred rods in operation, and the tiny streets of the settlement are filled with catches being weighed and counted.

In South Canterbury, Winchester has an old-world appearance like much of Canterbury, and this is a favourite haunt. To a certain extent salmon fishing has overshadowed trout fishing in Canterbury, but this will be dealt with later.

Otago and Southland

Nearer the mighty Ranges, and throughout Otago and Southland, there are countless lakes, rivers, brooks, mountain pools, of all sizes, depths and shapes, and all in sight of beautiful forest and mountain scenery. Lofty weathered cliffs, innumerable lacy waterfalls, sparkling rapids, gay coloured mountain flora, are in sight of the fisherman all the time. Though the glacial region of the island is larger than that of Switzerland, the glaciers are approachable, lying, as it were, on the roadside. Good roads of easy grades penetrate to centre of access.

In the multitude of lovely lakes it is hard to make a selection. Lake Te Anau is the second largest sheet of inland water in New Zealand, with one shore flat and rising slowly to undulating sheeplands, while the other is the jumbled forest wilderness that stretches in solitude to the west coast. The fishing here is either from the gentle beaches in waders or by boat. The Te Anau hostel is capacious and modern, and launches are for hire. Hereabouts the angler will be tempted to try for salmon, for, in this lake region and in Canterbury, there is some of the best salmon fishing in the world.

For the angler-artist, Southland provides some of the most exciting fishing in the world. The Clinton River, for instance, has deep and clear water with white sandy bottom. The fish can easily be seen, and this, with many counterparts in Southland, provide a real test of angling skill. The size of the fish seems to depend on the stream;

they run down to 2 lbs. in the smaller brooks, to 8 lbs. in the larger rivers and in the lakes.

Accommodation throughout Southland is excellent, the country hotels resembling the inns of the Old Land. In Invercargill the Licensing Trust has made great progress in the installation of up-to-date well-equipped hotels. The city was formerly under No Licence regulation.

The emphasis in Southland is on skill, and overseas visitors will get a warm welcome from the Southland Anglers' Club, and the Southland Acclimatisation Society. As this district has also Atlantic and quinnat salmon fishing it should not be overlooked.

NOTES ON TACKLE AND GEAR

Rods

10 to 11-ft. rods, of split bamboo, with or without steel centres, are the most suitable. Some fishermen use a two-handed 12-ft. or 13-ft. rod. Good fishing rods are obtainable in all centres in the two districts, and the locally made ones are sound. For lake fishing, naturally, the more powerfully built rod is better.

Lines and Reels

100 to 120 ft. of double tapered line is needed, with a balance made up of strong backing IBI and certainly not less than ICI. The reel should hold from 90 to 120 yds. of line and backing. The casts should have a breaking strain of 3 to 4 lbs. for river fishing, and those tapered to 1x are light enough for lake fishing.

Flies

All the traditional flies get results but it is wise to obtain local patterns. Every lodge has supplies of local tyings; but there is no harm in bringing your own collection to New Zealand.

Gear

Trouser waders and nailed brogues are both needed for offshore lake fishing and for the rivers. A short coat is also useful to be worn with the waders. Gaffs are prohibited, and a landing net is handy for fishing from boats or when wading deep in lakesides. Once more it is worth while emphasising that all gear, rods, flies and so on, can be purchased in New Zealand, though, due to the war, importations have tapered off. However, there is much local production lately, and it is expressly made to suit local requirements, and fishing conditions.

It is also worth while reminding visitors that for much of the fishing in these two districts the weather is reasonably warm, and light summer clothes are more comfortable.

One of the distinctive joys of fishing in this area is that there is always a hot thermal pool within a mile or two. A set of bathers, therefore, should be in your dunnage.

SALMON FISHING

As far back as the days of separate Provincial Governments in New Zealand, memories of sport in the homeland caused endeavours to establish salmon in the rivers of the South. In 1868 the Otago Provincial Government imported 100,000 salmon ova from which 500 fry were reared and liberated in the Waiwera River, 70 miles south of



PLATE 63

BLUEPOINTER (*CARCHARODON CARCHARIAS*)
WHITEPOINTED

SOUTH AFRICA
1966-1971

Dunedin. Canterbury, Southland and Auckland followed suit. Then in 1908 and onwards shipments were brought in from Irish rivers, the Tay of Scotland, and later from the River Test, the Dee in Wales, and the Rhine. The quinnat salmon was first introduced in 1876.

Now salmon are established in all southern rivers, and in most of the lakes. Broadly speaking, the Atlantic salmon inhabits the more southerly streams, notably the outfall rivers from Lakes Monowai and Te Anau. The Canterbury rivers are rich in quinnat salmon, average weight 18 to 20 lbs., though 40- and 50-pounders are sometimes caught.

The fishing in the Canterbury rivers is thoroughly well organised. The season runs from January to April, when the salmon are running up the rivers to spawn. The Canterbury rivers are distinctive; they are snow-fed, brawling down from the glaciers and lakes of the Southern Alps, and rushing across the broad plains. They split into wandering streams over wide shingly beds and flats; the fishing is most accessible. Broad asphalt highways run from Christchurch to Dunedin, passing all the main salmon rivers, the Rakaia, Selwyn, Rangitata, Waitaki, Ashburton, and some smaller streams.

There are local societies in the towns near these rivers who own huts which are available for letting. As a matter of fact, it could be said that these rivers, near their mouths, are dotted with fishermen's townships of baches, huts, and more comfortable bungalows; the sport is universally loved, and all sections of the community indulge in it. The 25s. annual licence is within the reach of everyone, and there are fish for all.

At Christchurch, Timaru, Oamaru, Ashburton and other centres, there are anglers' clubs and acclimatisation societies whose officers will be happy to supply any information to help the visitor.

For those who want to go farther afield, splendid roads lead to the Hermitage, at Mount Cook, passing Lakes Tekapo and Pukaki which, with their streams, are rich in fish, including brown and rainbow trout and salmon.

Lake Wanaka is another fisherman's paradise. There is an exceedingly comfortable hotel, and there are many lodges and houses. At Wanaka there are good beaches, and launches in plenty. The lake has several islands and is ringed by whitecapped mountains. A few miles away is Lake Hawea, another glacier-gouged lake whose attendant streams are also well stocked. The local folks all know the lake bays in which fish are plentiful, and there are brown and rainbow trout and quinnat salmon. Lake Wanaka is a wholly delightful fishing resort as well as a centre for sight-seeing on the grand scale. An easy run to Lake Wakatipu brings us to the beautiful setting and town of Queenstown, beloved of holiday makers. Lake Wakatipu is long and narrow, more like a fiord than a lake. There are ample supplies of boats and launches, and one of the local sights is the feeding of the trout near a jetty where monsters come in during the morning to get their daily ration.

The summer climate is ideal throughout all this vast region.

It can be stressed that all through this picturesque South Island area, fishing is the people's summer sport; the roads are so good and transport so cheap, a fishing bach is a commonplace for a man with a very small income. This leads to widely diffused knowledge of angling, but it is to be remembered that there is no need for anyone to keep his knowledge secret; the reverse is the case, for the hotel porter, the taximan, the service car driver, the folk who serve in shops and offices, are all ready and eager to impart their knowledge. In addition, there is the complete booklet service issued by the Government authorities. Overleaf is a specimen page dealing with Canterbury, but coverage on the same lines is given to every area in New Zealand.

South Island Fishing Streams

<i>Stream</i>	<i>Means of Access</i>	<i>Accommodation</i>	<i>Remarks</i>
	NORTH	CANTERBURY	
River Avon	Runs through Christchurch and district. Fishing at Heathcote and Styx	Hotels at Christchurch	
Cam River	14 miles north from Christchurch	Hotels at Kaiapoi ..	Fly fishing.
Ashley River	20 miles north from Christchurch	Hotels at Ashley ..	Fly and minnow fishing.
Cust River	31 miles north from Christchurch	Hotels at Kaiapoi ..	Fly fishing.
Waimakariri River ..	7 miles north from Christchurch ..	Hotels at Christchurch and Belfast	Fly fishing near Belfast. Also, in autumn, quinnat salmon.
Hurunui River	60 miles north from Christchurch	Accommodation at Hurunui	} Fly fishing. Also quinnat salmon.
Waiiau River	100 miles north from Christchurch	Hotels at Waiiau and Hanmer	
Clarence River (upper reaches)	Near Hanmer ..	Hotels at Waiiau and Hanmer	
Selwyn River	20 miles south from Christchurch	Hotels at Christchurch and Springston, 3 miles from river	Fly fishing and live bait. Runs into Lake Ellesmere.
Hart's Creek	30 miles south from Christchurch	Hotel at Leeston (3 miles)	Fly fishing and live bait. Runs into Lake Ellesmere.
Irwell River	25 miles south from Christchurch	Hotel at Springston (8 miles)	Fly fishing and live bait. Runs into Lake Ellesmere.
Rakaia River	40 miles south from Christchurch	Hotel at Rakaia and at Southbridge (7 miles)	Brown trout. Good fishing at mouth of river. Wadeable. Quinnat salmon. Baits: Artificial minnow and spoon.
Springfield	40 miles west from Christchurch by rail	Hotel at Springfield	Fly fishing.
	SOUTH	CANTERBURY	
Temuka River	Near to town ..	Hotels at Temuka ..	} Fly fishing and minnow. Fishing in this district is good, especially from Winchester. Quinnat salmon can be taken at mouths of rivers up to 20 lb. weight. Flies used— <i>Oct. to Dec.</i> : Blue Dun, Blue Upright, Greenwell's Glory, Hardy's Favourite, Red Upright, and Red-tipped Governor; <i>Dec. to April</i> : Coch-y-Bondhu, Black Gnat, Hardy's Favourite, Red-tipped Governor, and Red Spinner. Good roads and motors available.
Waihi River	Near Winchester, 15 miles north of Temuka	Hotels at Winchester	
Opihi River	From Temuka and Winchester	Hotels at Temuka and Winchester	
Orari River	4 miles from Winchester	Hotels at Orari and Winchester	
Opuha River	Tributary of Orari River	Hotels at Orari and Winchester	
Tangawai River ..	Tributary of Opihi River	Hotels at Temuka and Winchester	

<i>Stream</i>	<i>Means of Access</i>	<i>Accommodation</i>	<i>Remarks</i>
ASHBURTON COUNTY			
Ashburton River ..	Easy access from Ashburton, 53 miles south by rail from Christchurch	Private hotels at Ashburton	Brown trout. Minnow principal bait. From middle February very good salmon fishing may be had. The local society own huts at the rivers, which they let. Roads are good and motors available. Spoon is best bait for salmon and sea-run trout.
Rangitata River ..	22 miles south of Ashburton	Private hotels at Rangitata	
Rakaia River ..	17 miles north of Ashburton	Private hotels at Rakaia	
WAIMATE			
Waitaki River ..	15 miles from Waimate by motor	Hotels at Waimate, Glenavy, and Hakataramea	Quinnat salmon. Live bait (bully) or Devon.
Hakataramea River ..	38 miles from Waimate by motor and 4 miles from Kurow	Hotels at Hakataramea	Good fly-fishing stream, also live bait.
Pareora River ..	15 miles from Waimate by motor and 7 miles from Timaru	Hotels at Waimate and Timaru	Good fly-fishing stream, also live bait.
Waihao ..	3 miles from Waimate	Hotels at Waimate ..	Good fly-fishing stream, also live bait.

HARBOUR AND COASTAL FISHING

In the many fine harbours in New Zealand, off its countless beaches, and in the multitudinous sounds and inlets, there is very fine fishing.

Long-lining and handlining are used, and, in a country where launching and yachting are universal sports, there are many devotees of this type of fishing.

Some anglers have developed a rod and line technique with the handsome kingfish, for instance, and I have seen a 50-lb. fish taken after a long strong fight. Kingfish up to 100 lbs. are common. Few people fish on light tackle for the kingfish, as he lives in deep waters and fights down all the time. Most anglers use the overhead reel with 400-600 yds. of line. Hapuka (groper), snapper, terekihi, butterfish (greenbone), red and blue cod, gurnard, john dory, mullet, ling and hake abound.

In the Marlborough Sounds the barracuda is plentiful; off the launches which are the main means of transport for the farmers in these Sounds, and off the many beaches, the fishing is good.

In many of the estuaries and river mouths, there are hordes of sea-run trout, and an active fish called kahawai revels in the surf of ocean beaches.

Cook's Straits, Bass Straits, and the northern east coasts are particularly rich in fishing grounds, but all harbours and inlets provide good sport for the casual yachtsman or launch voyager.

BIG GAME FISHING IN NEW ZEALAND

Zane Grey, Dr R. L. Sutton, and many other overseas visitors have written of the wonders of deep-sea fishing in New Zealand waters.

The great pioneering missionary, Bishop Marsden, wrote in 1819 that he "came up with 40 canoes full of people fishing. They were fishing for none but the swordfish to be preserved for winter food. In olden days amongst the Maoris a man had not proved himself a man until he had slain an adversary in battle or caught a swordfish."

The angler in search of records has no option but to pay a visit to New Zealand, where amazing weights in game fish are usual, and many world's records are held, culminating in the 1,000-lb. mako shark caught by an aircraftsman.

The principal records are as under:—

1,000 lbs.	..	Mako shark	..	..	Aircraftsman Ross, March 1943, New Zealand.
976 lbs.	..	Black marlin	..	..	Captain Mitchell, U.S.A.
922 lbs.	..	Thresher shark	..	..	W. W. Dowling, London, England.
450 lbs.	..	Striped marlin	..	..	Zane Grey, U.S.A.
111 lbs.	..	Kingfish	..	..	Zane Grey, U.S.A.
673 lbs.	..	Broadbill swordfish	..	..	H. White Wickham, London, England.
495 lbs.	..	Mako shark	..	..	Miss V. G. Taylor, London, England. (Women's World Record).
463 lbs.	..	Hammerhead shark	..	..	C. F. G. Miller, New Zealand.
823 lbs.	..	Black marlin	..	..	"Carrie Fin". Women's World Record.

All these records are in continual danger, as there seems to be no dearth of tremendous game fish of fighting qualities. The mako shark has made New Zealand famous; it does not migrate like the marlin, and is found all the year round, catches being recorded as late as June. The mako is an incredible fighter; he goes straight into the air, often as high as the top of the masthead of the launch, and instances have been recorded of them actually landing in the cockpit and wrecking the chair and everything else within reach.

As a preliminary, the catching of the kahawai and other fish used as bait is pleasant sport. The kahawai abounds in countless schools during most of the season. This fish is taken on spinner and line, but some anglers prefer the joy of taking it on a light rod with the thrill of trout fishing without having to wait for a rise. Trolling and drifting are both practised and each method has its devotees. Teasers are universally used and certainly help to bring this fish to the surface. Since the visit of the Lerner Expedition in 1939 anglers now often use the outrigger method of trolling a bait. 36- or 39-thread lines are the only ones used as few small fish are experienced and one always hopes for the record to come one's way. There are other splendid fish in these sunny waters; the streamline and deep blue bonito (caught more easily at a speed of 12 knots), and the trevally, a surface-feeding fish which seems ubiquitous and preys on small shrimps. Then there are the deep-sea pipers which often get scattered by kingfish or other larger ocean goers and breach the surface in leaps of several feet in shoals of two or three hundred at a time. Now and again, a penguin, cowfish or porpoise shows momentarily.

The scenic surroundings are unbelievably beautiful. The Bay of Islands consists of an archipelago of islets, some rigid, some flat and green, some merely rocks crowned with the scarlet blossomed pohutukawa trees. The Maoris, with their genius for nomenclature, called this the Tai Tamahine, the "Sea of the Girls," because the slimmest Polynesian belle could paddle her canoe on its glassy water with safety. The beaches are golden, the sea powder-blue, and there are jutting headlands, curving inlets and, for good measure, Whangaroa Harbour, long, winding and deep, with multitudes of

rocks like castles, like mushrooms, like selzogens containers, like pinnacles. The shore hills are domed or square, or pitted with caverns. There is fishing everywhere, but the deep-sea variety is the favourite.

The water is often so clear that one can see the big blue-striped fish swimming 20 ft. below. When a swordfish seizes the bait, he runs off with it much as a dog chases off with a piece of meat.

Organisation

The rules of the International Game Fish Association apply to all certificates. Perhaps the essence of these is in Rule 7: "The angler must hook, fight and bring the fish to gaff, unaided by any other person."

There is a special brotherhood of the sport of big game fishing. Deep-sea anglers are awarded certificates by the various clubs, whether records or not, and pin trophies are offered for largest catches to date and for the season.

The lodges and accommodation houses are modern and comfortable, and the tariffs by world standards are very low. Food is uniformly good everywhere. Russell, the principal settlement, is well endowed with hotels and hostels, as is the beach paradise of Paihia. Tauranga, on the Bay of Plenty, is one of the loveliest seaside resorts of New Zealand, the "Land of a Thousand Beaches," and is equipped to handle a large tourist traffic. The climate in these regions averages about 2,500 hours of sunshine, one of the highest in the world's temperate zone. It is never, however, oppressively hot, and the joy of the chase is considerably enhanced by the entrancing scenic surroundings. Then there is Mercury Bay, on the Coromandel Peninsula, where there are, in exciting vistas, more fields for the big game fish sportsman.

Details of Big Game Fishing Grounds

The best known fishing club is at Russell, known as the "Bay of Islands Swordfish and Mako Shark Club." Then there is the Whangaroa Swordfish and Big Game Fish Club; then, farther south, are the Mercury Bay Swordfish Club, and the Tauranga Deep Sea Fishing Club. The subscription is nominal, being 10s., and there are no licence fees, nor are there any limits to the number of fish to be taken during the season. The fee of 10s. entitles the visitor to all privileges, including the recording and weighing of all catches.

The Bay of Islands is reached by rail or motor from Auckland, occupying six to eight hours (the roads are excellent). Aeroplane transit is also available, the journey taking about one hour from Auckland.

There are three hotels in the town of Russell, from £4 4s. weekly to £3 10s. However, many fishermen avail themselves of the camps at Otehei Bay, Urupukapuka Island. Here there are bungalows with two or three rooms which ring a central building with a comfortable, well-furnished lounge and spacious dining-room. There are tennis and croquet lawns, electric light, and, of course, radio sets. The Bay has a good landing jetty, with weighing and measuring equipment.

At Whangaroa there is the Hotel Marlin, with modern appointments. The tariff is again £4 4s., and it can be assumed that the accommodation, whether in a private bungalow or otherwise, will not exceed 25s. per day.

Tauranga is seven hours from Auckland by rail or can be reached by motor road in less time. In Tauranga itself there are many good hotels, and on Mayor Island, though there are no permanent camps, facilities are available for temporary accommodation.

On the north side of Tauranga, on a long spit, is Mount Maunganui, where there are bathing beaches equal to the best in the world. On one side is a many mile stretch of rolling surf on gradually shelving sands, and on the inner, there is always bathing in calm water. The sand is white and sparkling. Mount Maunganui is several miles closer to Mayor Island than Tauranga and many visitors elect to stay there. Here again the tariffs for good class hotels range round £4 4s. weekly.

Mercury Bay is approximately four and a half hours by motor road from Auckland. The Whitianga Hotel is high-grade and the charge £4 4s. weekly.

Transport

All fishing centres have ample launch transport. Fast vessels, designed and equipped especially for big game fishing, are available, and their masters without one exception are superbly skilled in the art. No extra assistance is necessary, as these hardy folk have tremendous local knowledge, and know the district from A to Z. The hire ranges from £4 to £5 per day. If the launch skipper has to stay at an established camp, his meals and bed have to be provided at a cost of 7s. 6d. approximately, per day. There will usually be, in addition, the cost of an extra launch hand (deemed necessary in most cases) of about £1 per day. Launch masters will supply tackle and equipment if need be.

Equipment and Tackle

Leather shoulder harness is used by most fishermen; the rod should be stout and from 6 to 7 ft. The line runs from 500 to 600 yds., necessitating a reel in proportion. Nos. 36 and 39 are the most popular threads. The trace is a 25-footer of steel wire (galvanised).

It is to be remembered that all the best makes of English and American tackle can be bought in New Zealand. There is, however, a tough New Zealand timber, tanekaha, which, when selected and seasoned, makes a rod equal to the best English.

The big game fish classification excludes the tiger, reremai, grey nurse and blue sharks. These are often caught, but do not count as trophy fish. The tackle and gear must be of the best, for it often takes hours to land one of these sea titans and there is terrific strain.

The season runs from January to end of March, the latter half of the quarter being the best.

It can again be stressed that nowhere in the world is a big game fish field equal to this fascinating New Zealand littoral where the seas are warm, sheltered, and there are so many scores of deep inlets, wide sweeping bays, attractive islands with tiny coves, and cosy harbours everywhere. There are consequently no weather dangers. Added to these features, is the ease of transport to the waters which swarm with big fish of all kinds.

Last Words

The true angler finds as much satisfaction in the enjoyment of his surroundings as in his fishing. In no other country of the world can the sport be found in more ideal conditions than in the whole length and breadth of New Zealand. The title of "Anglers' El Dorado" needs qualification; New Zealand consists of several El Dorados for the angler and sightseer. The riches in plenty here for the overseas visitors are varied and inexhaustible; fish of size and vigour are not confined to one class or type; New Zealand lives up to its ranking as "the universe in miniature" in angling as in scenic wonders, in a cheerful and progressive way of life, and a climate that might have been specially selected for the world's sportsmen and holiday makers.

PART FIVE



TIGERFISH

By LEANDER J. McCORMICK



HAVE stated heretofore in print, and am still ready to maintain my pronouncement, that the tigerfish of Africa is the fiercest fish that swims. Let others hold forth as advocates for the mako shark, the barracuda, the piranha of the Amazon, or the bluefish of the Atlantic. To them I say, "Pish and tush!"

This sweeping challenge is not issued on behalf of the mighty Goliath tigerfish—to whom I bow, hat in hand—but is offered in tribute to the common or garden "poor relation" tigerfish that abound throughout northern and tropical Africa. Small though they may be, they are quite fierce enough and tough enough, God wot! to earn my deepest respect and admiration.

There are five varieties of tigerfish: the miniature *Hydrocyon forskalii*, the huge *H. goliath*, and three intermediate sizes, *H. lineatus*, *H. brevis*, and *H. vittiger*. Every one of them is a demon of fighting savagery. This genus *Hydrocyon* is an ancient one, belonging to the sub-order Characinidae. It originated in the remote period when the catfish and carps also first appeared on this earth in the early cretaceous period; but there is a mystery about the characins, and certain other families of fish that inhabit Africa, which has not yet been definitely solved by the scientists—and they are pretty upset about it. Nowhere else in the world do characins exist, except in South America. It is inconceivable that they could have originated independently in the two continents, so the question is: How did they get from one to the other? They could not have survived a swim across the salty oceans, therefore they must have migrated through the medium of connecting lakes and rivers of fresh water. What were those lands by which they passed? Was there an isthmus at one time? Were Africa and South America joined together by Antarctica? Were the two continents all in one piece, and did they drift apart subsequently, like clinkers floating on the molten inner core of the globe? Now, most of the interhemispheric dispersals of animals are deemed to have occurred over land bridges in Arctic latitudes. If, however, the characins had reached South America and Africa by that route one would expect that they must have left some of their fossil remains in North America and Europe, but so far none have ever been discovered in those regions.

It is perhaps the amazing teeth of my hero, the tigerfish, which clear up this migratory mystery. His are like those of no other living fish, except those of the characin, *Hoplias*, of South America, which in a less sensational manner have similar characteristics. These two are outstanding among all bony fishes because of the method of attachment of their teeth to the jaws and the peculiar form and structure of the teeth themselves. Having regard to this, the late Charles R. Eastman pointed out that fossil teeth of the primitive fish *Onchosaurus* have been collected in North America, Europe, and Northern Egypt which anticipate these peculiarities, and therefore the supposition is valid that

Onchosaurus was an ancestor of the characins, and that they did reach their present habitats over an Arctic land bridge. In spite, however, of this proposed solution of the problem, there is no confirmatory evidence, and some scientists hold that the other theories are more justifiable.

The tigerfish is distributed through all the important rivers and lakes of Africa (except those waters, such as the Orange River and Lake Victoria, which are thought to have become desiccated in ancient times) thus proving that it was one of the early immigrants; but although so widely available, and so game, it cannot be considered a favourite quarry for anglers. The reasons for this seeming neglect are compelling enough: first, the tigerfish is not very good to eat, its flesh is generally insipid and contains a great quantity of bones; secondly, tigerfish—especially the big ones—are terrifically difficult to catch; thirdly, to find them in large numbers generally requires a visit to alarming and out-of-the-way locales.

As for the first of these reasons, I cannot say personally, having never tasted tigerfish, but I am informed that if they are immediately gutted, and their bodies slashed along the flanks with large gashes, they become passably edible. I have heard of this procedure being employed with other fish, but have no idea why it is effective for culinary purposes. In this connection it must be remarked, however, that when unusual efforts have to be made so as to render an animal worth eating, the presumption is that it cannot have been very good to start with. An African friend of mine tells me that a dish of tigerfish is like eating cotton wool filled with darning needles. Dr H. Gillet informs me, however, that the eating qualities of *H. lineatus* vary depending on the rapidity of flow and the clarity of the waters in which it is captured; conditions that apply, of course, to all fresh water fish. He states that though the flesh is almost invariably white, in certain localities tigerfish are taken with yellowish or pink flesh, due no doubt to their feeding on some form of crustaceans. Under these circumstances they are much more savoury. The meat in any case is firm, but owing to the exceeding number of fine bones, any fish under about 8 lbs. presents a too annoying dish to be worth the trouble of preparing. It so happens, as I shall shortly set forth, that tigerfish of large size are almost uncatchable. They are apt to smash ordinary tackle, and besides anyone fishing for the pot will usually find Nile perch in the same waters. Since Nile perch make delicious eating and are easy enough to capture, it is not surprising that tigerfish should be given a wide berth.

Next we come to the difficulty of landing a tigerfish. I believe that this fish is the most exasperating to catch of all those which regularly seize a lure. Many fish require skill and patience in the hooking: the bonefish, because it is so shy, and because of the delicacy with which it takes the bait; the wary trout of an English chalk stream is equally exacting for similar reasons; many coarse fish are timid and pernickety about obliging an angler; the salmon is hopelessly temperamental as to what kind of fly it wants, if indeed it wants one at all; but none of these idiosyncrasies apply to the tigerfish. He isn't shy or timid, he isn't fussy about what is offered him, and he isn't delicate about the way he seizes the lure. Oh, no! He isn't *delicate* about seizing the lure. Nothing could be less delicate! The tigerfish hurls himself at the lure the moment he sees it, and grabs it violently with the most murderous intentions. It is at this point that the difficulty arises, and has partly to do with the aforesaid amazing teeth of the animal. These teeth, of which there are ten in each jaw, are tremendously long and sharp. They are spaced at intervals so as to leave room in between for corresponding teeth in the

opposite jaw. The teeth are, however, so long that they cannot be contained within the lips, and consequently about half of each tooth is sunk into a channel on the outside of the lips. Thus, when the mouth is closed, one can still see the business ends of these fearsome weapons exposed as a dire threat from which it is best to keep well away at a circumspect distance.

The form of these teeth resembles somewhat that of mako sharks, but these fish have with *Hoplias* another dental convenience that parallels the shark's. Within the mouth there lies flat in a narrow trench a successional row of teeth available to rotate and replace any of the first set that may be lost. The jaws of the tigerfish are articulated by a hinge in front, like nutcrackers, in such fashion that their width at the rear can be greatly expanded or contracted as required. This hinge, by the way, is unique among living animals, though in a less perfect form it is found among certain other carnivorous characins. Dr Gregory, who has written a paper on this subject, tells me that the nearest example he knows of an approach to this development was in the lower jaw he once examined of an aged and arthritic yak—of all creatures! Besides these very peculiar conditions, the mouth in tigerfish is exceedingly bony and hard, while the jaws themselves are comparatively short, thus providing an excellent leverage, and are made to function by extremely powerful muscles. If one puts all these unusual features together one arrives at the technical explanation of why it is almost impossible to plant a hook firmly in the mouth of a tigerfish. Having seized the lure with ferocious vigour, the fish clamps down its immensely long teeth on, say, the spoon. The angler thereupon strikes with all his strength, but nothing happens as it should. The teeth are so long, the interior of the mouth so "armour-plated" and so well protected by the extra row of teeth, the jaw muscles are so strong, and the articulation of the jaws with the symphyseal hinge-joint are so mechanically adjustable that the point of the hook fails to penetrate or take hold. The spoon is gripped in a vice while the fish gives a mighty leap. At a micrometric instant the tigerfish opens its mouth and with an appropriate contortion of its jaws expels the hook and spoon. All that remains for the angler is to let loose some suitable oaths, untangle the over-run in his line, and try again for this most infuriating and difficult of fish.

I have listed a third compelling reason to account for the unpopularity of tigerfish as a quarry for anglers. It concerns the absurd locations in which the fish hangs out, and in addition I must mention the formidable companions with which it associates. If there is a cataract, a waterfall or otherwise unnavigable section of river available, one can be sure that tigerfish will congregate there. Failing these water hazards, it will choose for its home those parts of rivers that flow through impenetrable jungles teeming with poisonous snakes, leopards, buffaloes, and elephants. Of course, such places will also swarm with tsetse flies and malarial mosquitoes. But I think the gravest hindrance to the enjoyment of this angling has to do with the other two members of the eternal triangle, lacking which the life of a tigerfish seems incomplete. I refer to the hippopotamus and the crocodile. People always laugh at hippopotami: they seem so good-natured and foolish as they munch hay in a zoo. "What a clumsy, silly fellow he looks" giggles the charming young lady at your side. Just wait until there is a wild one in the river near your fragile canoe! If you have ever seen hippos gallop rapidly in three feet of water or swim toward you furtively submerged like enemy submarines, you will realize that they are not so ludicrously beneath contempt after all. For some reason hippos cannot resist capsizing small boats. It is a sort of folly with

them. Possibly they mean no harm, but then you may find yourself struggling in water stiff with crocodiles. You have always been told that crocodiles are cowardly creatures but in such circumstances you are apt to be sceptical. You figure that if a crocodile bites you in half, the tigerfish will grab off anything that is left over. It is not an agreeable prospect.

These accordingly are the main reasons, I believe, why tigerfish have not received due recognition from the anglers of the world as probably the most sporting of all fish. Perhaps the objections I have outlined may appear exaggerated or facetious, but let me recount some personal experiences. The first attempt I made for tigerfish took place on the Zambesi, a mile or two above the Victoria Falls. I was staying there with my friend Reggie Hope at one of the best hotels in Africa. We had retired early on the night of our arrival, but became nervous of catching malaria when we saw the elaborate arrangement of screens and netting installed for our protection by the management. Later we learned that this was an especially bad place for acquiring the disease. In the morning I consulted with the head porter on the subject of angling. As I always prefer fishing from the shore, I asked if there were not some locations along the banks of the river from which one could cast for tigerfish. He told me that though this was feasible he did not advise me to try it on account of the numerous poisonous snakes and crocodiles. He proposed instead that I should go out with some natives in a boat. Shortly, Reggie and I found ourselves aboard a large but narrow dug-out canoe being paddled by four sweating natives. We were in one of those haunts preferred by tigerfish only a short distance above an enormous waterfall—the mightiest in the world, as it happened. After a while we edged out into the main stream where hard paddling was needed to maintain our position. Without being told we could feel the clutch of the remorseless current. Not far below us the spray from the great drop rose half a mile in a cloudless sky. Reggie and I did not fancy our situation. If the canoe should upset, and like all dug-outs it was an exceedingly tippy affair, we could envisage a rather rapid swim over the falls. Not only that, but on every protruding rock in all directions there were hundreds of basking crocodiles. Having decided to ignore this calculated risk, I proceeded to troll, and then began casting a small fish called a gillieminkie (*Barbus trimaculatus*) which I had rigged on to some triangle hooks. I was using “three-six” tackle with a No. 2-0 Vom Hofe reel—an outfit adequate for fish up to 50 lbs. About the fifth cast something hit my lure. The sensation was different from any I had experienced before. It felt as though I had hooked a log or a rock. I struck and with the strike came a vicious jerk, but that was all. Reeling in I discovered that the gillieminkie was gone—stripped away from the three triangle hooks without leaving a sliver of flesh behind. This was astonishing. These triangle hooks (also called treble, triple, or gang-hooks) are not easy to get loose from, as anyone familiar with them knows. I put on another bait and tried again. The same thing happened several times. Generally the bait was missing or badly mangled. I wired on a bait so it could not come off, and then had the humiliation of counting six strikes, and failing every time to hook a fish. At the seventh I was on. There was a considerable battle. I could sense that the fish was small, but what a fighter! At last I got it to the canoe. It was a tigerfish all right, and, though it had a whole triangle of hooks in its mouth, I did not fancy it too much in the canoe with those teeth. The steersman knew what to do, however, and killed it with a club.

If it were not for those menacing teeth, which produce such a demoniac expression,

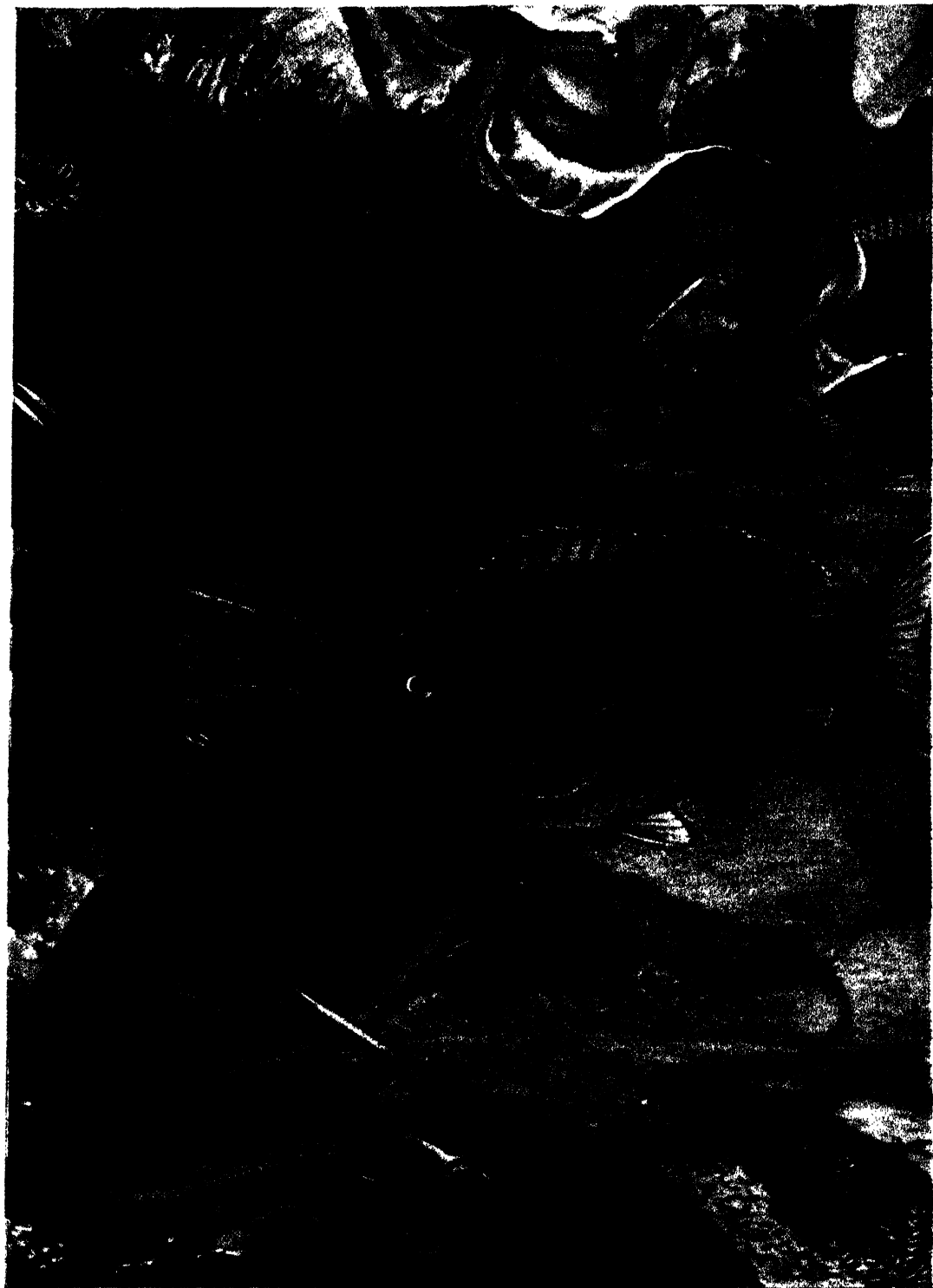
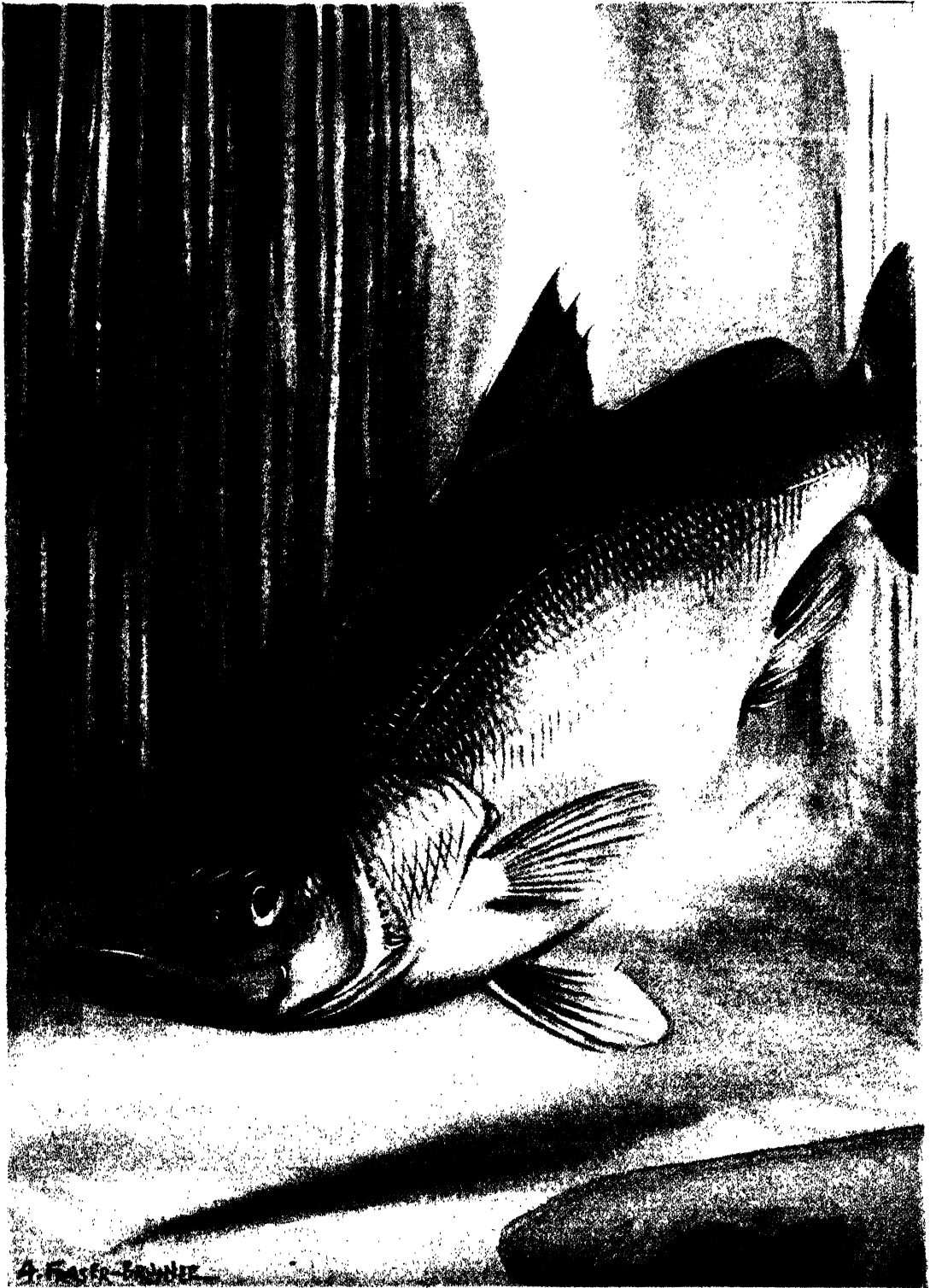


PLATE 65

JOHN BROWN (*GYMNOCROTAPHUS CURVIDENS*) SOUTH AFRICA



A. East Africa

the tigerfish might be considered unusually beautiful. Built like a very stocky salmon, it is covered with bright scales. In this fish they were a pale lemon yellow. Along the sides ran darker scales in stripes, from which, no doubt, it has received its English name. The back was olive green, while the fins and tail were a brilliant orange. In common with salmon, trout, most catfish, and nearly all the characins it had an adipose fin. The colour of these fish in the Zambesi is yellow, but in other rivers it may be an electric blue. My tigerfish weighed only $2\frac{1}{2}$ lbs., but it was full value. I continued to fish and after losing quite a number managed to secure two more—both of them smaller.

The next day we journeyed farther upstream by launch to Kandahar Island. When the sun had abated its full vigour I went out again in the canoe. After a while I caught a small fish, then came a long pause. We had ventured into very swift water. Suddenly I got a really powerful strike, the line ran out at great speed, and in another instant I saw a splendid fish leap 60 yds. away. These fish jump like tarpon, with a wiggle, a twist, and then the well-known head-shake that has thrown so many hooks. It happened that way this time, and the fish was off, but I had had my first experience with a larger one—a 10-pounder, I estimated. I was beginning to get very excited by this prelude when the steersman also showed some excitement, and pointed out a hippo, about 200 yds. off, looking at us with a typically comic and yet ambiguous expression which might be friendly or very much the reverse. The hippo dived, but I kept an eye cocked in his direction. A minute or two later he came up again only 70 yds. from us. I told the steersman that I was thirsty, and we paddled back rapidly to the launch. The natives certainly put their backs into that last piece of paddling.

Continuing my trip, I went to Lake Albert, where I chartered the *Livingstone*, a 60 ft. steamboat, and there had excellent sport fishing for the small variety of tigerfish, called ngassa (*H. forskalii*). I used ordinary trout tackle except for 18 ins. of fine wire in place of a gut leader (cast). These little fish, running to about 1 lb., were exceedingly game. Any sort of lure would tempt them: wet fly, dry fly, bass bugs, tiny silver spoons, and, no doubt, small plugs would also bring an instantaneous response. I found, however, as I have so often in rarely-fished waters, that the American "hair-basser" proved the most effective. This fly made of buck-tail, dyed in various colours, is dressed on a No. 6 (English No. 9) hook. In addition to swimming well, it is almost indestructible, and nearly weedless, as the hair covers and protects the barb. The little ngassas would dart at it and hook themselves quite regularly since their mouths are not endowed with such efficient defences as the larger tigerfish. Everywhere in shoal water there were scores of ngassas all about the same size. They fought like the little devils they are, jumping repeatedly until completely exhausted. I caught a dozen of them, which I kept as bait for Nile perch.

There are hippos in Lake Albert as well as crocodiles, and it is thought that there may be some very large wagassa (*H. lineatus*) in the deep parts of the lake, but of these we saw no sign. Leaving Butiaba Bay, where I had done this fly-rod angling, we steamed to the embouchure of the Victoria Nile at the north end of the lake, and ascended the river to about a mile below the Murchison Falls. There we anchored in midstream. This short stretch of river had afforded a perfect setting for wagassa. It had everything that goes with tigerfishing: a treacherous river, filled with hippos and crocodiles—I must have seen one hundred and fifty hippos, and at least four hundred immense crocodiles—while the jungle on both sides surely contained poisonous snakes, leopards, buffaloes, and elephants; besides, it seethed with malarial mosquitoes and

swarmed with tsetse flies. This part of Uganda is a game preserve, and I was so occupied observing or eluding various beasts that my attention was distracted from the angling. In fact the only attempt I made for tigerfish was on our way up this sinister river. From the whaleboat I trolled a No. 5 Pflueger "Record" spoon on the handline, and after several vicious strikes managed to hook and land a fine one of 22 lbs. The boat was doing about five knots, and, of course, in such conditions a fish has scarcely any chance to manœuvre or gain slack—an almost essential requirement for getting rid of the hook—but there is no comparison between the defence of this fish and that, say, of a salmon of equal weight. The tigerfish is vastly stronger, more ingenious, and more active.

Because this chapter is devoted to angling for tigerfish, I will only digress to give a few sidelights on this little expedition. I think they are needed, however, so as to round out the picture of what is included with tigerfishing at Murchison Falls. Our ship followed a winding course up the river according to the depth of water and the current, thus sometimes we were in midstream and at others near the shore. At one place we were very close to the right bank, and came upon an extraordinary scene. In a small clearing not more than 10 yds. away two bull hippos stood facing each other. They were panting hard, and paid no attention to us. Then we saw they had been fighting and that their flanks were covered with enormous gaping wounds a foot or more long slashed by their razor sharp tusks. Their bodies were pouring quarts of blood, so much so that the whole battle-ground was turned from green to scarlet. If we had arrived a few minutes before we would have witnessed a strange and sensational combat. We continued our voyage, and after anchoring decided to land so as to get a better view of the falls. Vaz, our captain, sent one of the crew ahead to scout as he said there were often elephants in that vicinity. In a few moments the boy came running back, exclaiming, "Tembo, Tembo!" They were there all right. Reggie and I rushed forward as if we had never heard that African elephants are the most dangerous of big game. Shortly we came upon them, an old tusker and a female. We unlimbered our cine-cameras, and though our party of five was grouped within 30 yds. of the beasts, though we were chattering, taking films, and flicking tsetse flies away with our handkerchiefs, they never noticed our presence. After a while it dawned on us that the close proximity of wild elephants was unhealthy, and prudently resumed our jaunt to the falls.

Walking gingerly along the river I observed in every suitable indentation or back-water hundreds of tigerfish, packed together in schools. They averaged 4 or 5 lbs., and there were, no doubt, enormously greater numbers of them gathered in the rapids below the falls. Progressing through this sparse jungle was not easy. The trees and bushes were armed with thorns, besides we had to look out for snakes. Chiefly, however, we were bothered by the constant attentions of the tsetse flies. They had a habit of landing silently beneath the brim of our topi hats whence they could drop at their leisure on to the backs of our necks. We were kept busy driving them off. On account of these flies the whole area had been put out of bounds for natives.

On another occasion I went ashore alone. About ten of the crew were rowing the whale boat, and as usual they began singing. One of them would intone a short solo verse, then the others would come in antiphonally. The tune was fascinating, and the rhythm corresponded perfectly to the beat of the oars. The natives were laughing and obviously much amused by the words. I asked Vaz what the song was about, and after much hesitation and profuse apologies he explained that it went somewhat like this:

(Solo) The master is a — — —

(Chorus) Ain't that so, ain't that so.

I was the master, of course, and the three blank words no doubt became more and more obscene with each succeeding verse.

I had made this little excursion alone with the intention of photographing some crocodiles. Generally they were asleep on sandbanks near the river from which they could slip quietly into the water when disturbed, but I had noticed the day before that there was a gently sloping bank at one spot where I thought some of them might be lying up. My idea was to land some distance off and then get between them and the river, in the expectation that having thus stymied them so to speak, I could photograph them at my leisure. I was beginning to put this foolhardy plan into execution, but found I had not reckoned on two factors. First, crocodiles can run! They get up high on their legs—there is no laborious shuffling such as one might expect. In that thorny undergrowth they could run much faster than I! Secondly, having decided to make for the river, they were not going to be thwarted by any obstacle—least of all by myself. A couple of them tore past me within a few feet like express trains. In my flight I nearly dropped my camera.

In the evening on the night of our arrival we had settled down to some gin-and-tonics, and were admiring the rainbow reflections of the setting sun outlined against the black silhouette of the jungle. Around us there was peace, and suddenly, with scarcely any intervening twilight, darkness descended upon us. There was no twittering of birds, no shrilling of insects, nothing broke the silence except the murmurous roar of the distant falls. It was at this moment that we heard a splash near the boat, followed by a loud crash. It sounded as if someone had violently slammed down the top of a trunk. This peculiar noise was repeated frequently on all sides. The crocodiles had swum out into the river to feed, and it was evident that they were catching tigerfish for their suppers. We could not see in the obscurity how the crocodiles accomplished the seemingly impossible feat of securing such an agile prey, but I imagine that they simply floated downstream until a tigerfish came within range and then made a swift snatch with their terrible jaws. For half an hour the gruesome feast continued, and then ceased as abruptly as it had begun. On our last night there I tried to catch a crocodile using swordfish tackle. Having impaled a freshly killed chicken on the hook I let it float off downstream, but without response. Perhaps it would have been different if I had saved my large tigerfish for bait.

Early the next morning we left this unique spot. As was the case on our voyage up, we saw numbers of elephants, many waterbucks, various antelopes, bands of baboons, and strange birds; but particularly we were impressed by the hippos. One of them went galloping cumbrously along the bank ahead of us. Apparently he did not fancy the way our ship was bearing down on him belching smoke, and decided he would be better off in the water. Acting on the impulse he plunged into the river from a height of at least 6 ft. with a mighty splash. This one was a solitary bull, later we kept passing herds of hippos gathered fifty together in little bays along the shore. As we approached they would sink beneath the surface, but we were astonished when some of them attacked us. We could feel the whole ship tremble as they butted the hull with formidable blows. We could only surmise that they must have acquired splitting headaches to no purpose, but their behaviour went to show how aggressive hippos become in the vicinity of surface craft.

On our return to Lake Albert we transshipped to a stern-wheeler and proceeded north downriver. Shortly we entered the Sudd, that vast marshy champaign bordered with papyrus through which meander the sluggish waters of the Bahr el Jebel. For nine unforgettable days we voyaged to Kosti, observing on the way a "zooful" of animals. Among others must be mentioned scores of elephants and several herds of buffaloes, but even more interesting were the tribes of natives along the banks. Their complicated manner of adornment with cowdung headgears and delicately painted faces made the artifices of our modern women seem primitive indeed.

As we were negotiating the shallows above Kosti a tigerfish alarmed by the ship leaped more than 4 ft. out of the water and landed in our engine room. It weighed 23½ lbs. I was informed that the natives at Gudumuru on the Wadi Azum take advantage of this nervous jumping habit of tigerfish. At certain seasons when the water is low in shallow parts of the river they form lines and wade through the pools where the fish have become marooned. The tigerfish feeling themselves cornered begin jumping to escape the advancing line, and are thereupon caught in the air by the natives, who carry with them baskets shaped like an hourglass specially woven for the purpose.

From Kosti I took train to the Sennar Dam on the Blue Nile for my last attempt at tigerfish. Though this angling did not provide the same kind of hazards as at Victoria Falls and Murchison, it had other thrills that were exciting enough. At the dam there is a wall 30 ft. high which serves to confine the boiling torrent that hurtles from the spillway. To get at the tigerfish it was necessary to climb some irregular steps on to the wall and cast from there into the cataract below. The top of the wall was about 1 yd. wide, and had an uneven, treacherous surface. On one side of the sheer wall there were jagged rocks, on the other tumbling waters, whirlpools, and rapids in which a strong swimmer could hardly hope to survive. A little farther downstream lay the usual collection of crocodiles. It was from this precarious platform that I started my fishing.

Because no small bait-fish were available I was using No. 5 or 6 Pflueger "Record" spoons with a lead sinker attached to the swivel joining the line and the piano wire leader. My rod was one of those short, surf-casting types which can throw a respectable line without the inconvenient length of a salmon spinning outfit. My first cast set the pattern of what was to follow. The spoon had barely touched the water when there was a violent strike. I had not expected such a response, and was nearly jerked forwards off the wall into the raging flood. Recovering my equilibrium, I struck hard, the hook came out, and I found myself teetering desperately to avoid falling backward to destruction on the menacing rocks behind me. It was like a nightmare!

I descended from the wall and took a pull at my flask, which did not contain water. Having acquired some Scotch courage, I climbed up again on the wall and had another go at the angling. In these waters all the tigerfish seemed to run to a considerable size. They would strike furiously and with astonishing regularity. Sometimes I would get a strike on several casts one after the other. Often the hook would come out under water, or I would have the satisfaction of at least one fine jump, but the fish would not stay on. My angling was complicated by the fact that it was Sunday, and there were several Englishmen, connected with the maintenance of the dam, also fishing from the wall. They were after Nile perch to vary the fare on their tables, and were using "Crocodile" spinners rigged with various bait-fish, known as dibs, kawafa, or small kas. This last is the local name for tigerfish. When they got a fish on they would proceed downstream along the wall so as to beach it on a small island which joined the wall at the



PLATE 67

KABELJOU (*SCIAENIDAE* HOLOLEPIDOTA)

SOUTH AFRICA

lower end. This meant that I had to reel in my line each time so they could pass me on the wall. To them, thoroughly accustomed to these "Blondin" activities, this manoeuvre was simplicity itself, but to me it was a ticklish business to which I failed to become inured. Selfishly, I could not help hoping that they would stop catching fish! At last I reached the conclusion that the single hook on my spoon was ineffective, and so wired on a triangle hook at the head of the spoon. Immediately I had my first success. The fish was a good one, and put up a tremendous struggle. It gave me six splendid jumps, shaking its head and trying every trick, but finally I got it into a little backwater on the island, where my Sudanese chauffeur gaffed it with evident delight. I found it to be a hen fish with a large roe. She was a brilliant pale blue in colour, weighed 18½ lbs., and as it turned out proved to be the largest of the six I caught during my stay there. The record tigerfish obtained at Sennar, as far as I know, is one of 35 lbs. which was identified as belonging to the variety *H. brevis*. This species is deeper vertically than *H. lineatus*, but otherwise very similar in appearance.

The temperature there at that time of year (February) averaged 106 degrees in the shade, so the angling had to be done early in the morning or late in the afternoon. As it was already getting hot I abandoned my fishing for the day. On the following morning I discovered that tigerfish become quickly educated. I could only get an occasional strike, and accordingly changed my spoon to a Wilson No. 6b. This was a bronze spoon, and I at once began getting strikes. I counted sixteen before I captured my next fish. Now this is an inordinate number of misses. There are days, of course, when an angler's timing is a little bit off, but *sixteen misses* added to all the others go to prove how extremely difficult it is to hook a tigerfish. I must confess that one of my triumphs that morning was not particularly heroic. The spoon I was using at the time was 6 ins. long and armed with a single hook large enough to handle a tarpon. As I was retrieving it from a longish cast I suddenly felt a slightly heavier resistance. It seemed as if the hook might have fouled a floating piece of debris. My astonishment was great when I discovered a tiny tigerfish measuring not more than 8 ins. adhering to the hook. It seemed incredible that so small a fish had a mouth capable of engulfing so large a hook, and it was equally amazing that a fish of that size should be so bold as to attack a lure almost as big as itself. This baby had demonstrated to me once again how ferocious are all the members of this breed.

Among the British residents at Sennar there was one who had charge of the forestry division. He was kind enough to take me out with him for the afternoon in his car. After driving a few miles we arrived at a grove of acacia trees, from the branches of which hung innumerable fruit-eating bats. Up aloft there were also several bands of grivet monkeys, with black negroid faces peering at us quizzically, and obviously not amused by our presence.

Here we took a stroll through the shady jungle, which was bordered on one side by a canal constructed for carrying off part of the overflow from the dam. It looked to me like suitable water, and a good spot to try for tigerfish, but my friend told me that this particular patch of forest was infested with leopards. He had shot one there only a month before. Thus once again I found an annoying drawback to this angling which in the circumstances I deemed sufficiently cogent to be prohibitive. I do not, of course, claim that there is no place in Africa where one can capture tigerfish in easy comfort, but I believe that many of the best places are awkward, at least that is how they appeared to my way of thinking.

GOLIATH

By DR. HENRY GILLET

(Translated and adapted by Leander J. McCormick from voluminous notes in French furnished him by Dr Gillet)



Men of science sometimes light upon singularly appropriate names with which to denote the biota of this planet. In the case of the fish we are now considering there is no doubt that the celebrated ichthyologist, G. A. Boulenger, was happily inspired when he chose to identify it with Goliath, the terrible giant of Biblical history. For among fresh water fish there is no other to which such dire implications are better fitted than to *Hydrocyon goliath*—the ogreish “water-dog” of Equatorial Africa. If this fish has been aptly designated, one might with equal justification place Dr Gillet in the role of David, since by substituting hook and line for stone and sling he has contrived most effectively to slay Goliath.

Dr Gillet has been residing for the better part of the last thirty-six years in the Belgian Congo, and as medical inspector of a vast region has had the opportunity during leisure hours to fish for Goliath in many areas of the Congo River system. He is probably the greatest exponent of this angling, and is in fact one of the rare few who have had any experience at all of this extraordinary sporting fish. My first meeting with Dr Gillet goes back some ten years to a dinner in Brussels arranged as a sequel to lengthy correspondence on the subject of fishing, exchanged between him in Africa and myself in Austria. It is thanks to our old acquaintance that he has offered me his notes for use herein.

The family and origins of Goliath have already been dealt with in the chapter on tigerfish; its distribution is, however, much more limited than that of its smaller relations, and is confined to the warmer waters of the Congo basin—and *only* the Congo basin—at an altitude below about a thousand metres. It is precisely in those haunts, frequented by crocodiles and hippos, where a hopelessly impedient jungle crowds the banks, that Goliath is encountered. The fish is not found in the chain of great lakes extending south from Albert to Bangwelo, nor has it been reported from any of the other large rivers of Africa.

In shape Goliath resembles *H. lineatus*, the commonest species of the genus, but in size and colour it compares as a salmon to a trout. A fully-grown *lineatus* of, say, 25 lbs. would make only a third-grown Goliath. *Lineatus* varies a great deal in colour according to the waters it inhabits. In the River Kasai, a major tributary of the Congo, *lineatus* has a golden bronze hue, rendered still more sombre by a series of dark horizontal lines along the flanks, so that in effect it approaches the coloration of a brown trout;

Goliath has no stripes and is the pure silvery white of a fresh-run salmon. Its back is dark green, while the fins are blackish brown, except the caudal, which is of a more or less brilliant scarlet-orange. The tail itself is deeply forked, as in all fast-swimming fish, and of sufficient size to provide a tremendous pickup from a standing start, so to speak.

For the same reasons as in other tigerfish, the amazing teeth of Goliath are its outstanding feature. These teeth in a specimen of 40 or 50 lbs. may be 1.2 ins. long and nearly $\frac{1}{10}$ in. wide at the base, but they are considerably flattened in section like the blade of a dagger, thinning finely towards the point, and rarely exceeding $\frac{1}{4}$ in. through at the place of attachment to the jaw. The teeth are, in fact, designed for seizing and cutting, not for tearing, as is usual among most carnivores. In consequence of their shape, these teeth are somewhat fragile: occasionally they chip or break off in the course of a fight, if the angler is using a metal spoon or a piano-wire leader (trace). Not only are the teeth fragile, but the whole bony structure of the head, though tough enough in life, becomes brittle after death and falls apart quickly in the moist heat of the tropics, unless preserved with formaldehyde. Thus an angler may be much disappointed when he gets his splendid trophy home, if he has not taken the correct precautions and has failed to handle the skull with proper care.

Goliath does not seem particular about the kind of water in which it swims. One can come across it in rapids or stagnant pools, in clear or muddy lakes, in streams or rivers and in deep or shallow water. For the purpose of fishing, however, the angler will have better luck if he limits his search to clear water either in lakes or in the slow flowing parts of rivers. From this it follows that the best season to fish is in the dry months from the beginning of June till the end of September. Perhaps the choicest periods are in early June when the floods begin to recede, and in the latter part of September when the first rains commence. All through these months, however, the fishing will be good, and, equally important, the temperature lower, without the choking heat and humidity of the rest of the year.

It is not difficult to reach Goliath waters from Europe or America. By ship one can land at Matadi, Loanda, or Lobito on the Atlantic, or by air at Leopoldville. There is also air or train transportation from Capetown, Johannesburg, and Nairobi. At Matadi and Leopoldville one can immediately make an attempt on the fish. There are good hotels in both towns, and small boats may be hired capable of covering likely reaches of the river within a dozen miles or so. From the mouth of the Congo at Banana, as far as Matadi, a total distance of nearly 100 miles, there is a deep channel for ships drawing up to 30 ft. Though this channel is narrow and filled with navigation, the estuary itself is wide and wild. In the vicinity of the large Île de Mateba, there are, for example, many small islets and passes that could be fished from canoes or dinghies with outboard motors. The shores on both sides are for the most part picturesque and also entirely uninhabited, furthermore, it seems probable that the largest Goliaths are to be found in these waters. Here, then, is an excellent opportunity for the owner of a sea-going yacht to offer himself and his guests some thrilling sport in fascinating surroundings. Upstream, from Matadi to Leopoldville, there is a succession of impassable rapids for 250 miles. At Leopoldville there is an anglers' club, as well as a fish market where bait can be purchased. Above the town the river becomes so shallow that in the dry season it is only practicable for craft drawing less than 4 ft., and even these must be stern-wheelers. Owing to the rapids all the larger boats have had to be transported piecemeal by rail and re-assembled at Leopoldville. As a result there are

practically no launches with sleeping accommodation for hire, since every one is in constant use for freight or passenger service. Thus, if one lacks a yacht, the next best way to pursue Goliath, and also to see something of "darkest Africa" is by road. From any of the places mentioned above it is easy to get to Tshikapa, where there is a comfortable guest house, as a base for operations. Tshikapa is the headquarters of the Kasai alluvial diamond fields, to which strangers are not admitted except by permission of the Forminière Company at Brussels, or through the Office of Colonial Administration. It is therefore necessary to obtain this before going to the Congo; but the hospitality of Forminière is well known, and is readily extended to reputable visitors. Tshikapa is not actually a good fishing ground, but it is within a reasonable distance by motor from the following: (1) Lake Matshi, which contains huge Goliaths, and still more enormous Nile perch. Dr Gillet caught a 79-lb. Goliath in this lake. It lies to the west of the Loanga River to which it is connected by a short stream. At the lake there is an oil factory belonging to the *Companie du Kasai*, of Brussels, where anglers will be welcome, if they first apply to the company in Belgium. (2) Lake Fwa, which is not a lake but a strongly flowing river—a tributary of the Lubi created by the emergence of vast subterranean springs. Here is an agency of the *Companie Cotonnière Congolaise*. The river contains great numbers of Goliaths, and *lineatus*, though no very large fish. It is recommended, however, on account of its facilities in the way of native canoes, ease in obtaining bait, and especially for the exceptional beauty and charm of the place itself. (3) Lusambo, on the Sankuru River, where there is a passable hotel. The fishing extends for several miles downstream below the town. (4) Port-Francqui, on the River Kasai, with very fishy waters both above and below the meeting of the Kasai with the Sankuru. Many large Goliaths have been taken there. This town can be reached more conveniently by road from Luluabourg, or by stern-wheel steamer—a somewhat monotonous five-day trip from Leopoldville. At Port-Francqui there is an excellent hotel. A short distance from the town, at Basongo, there is a trader named Vander Molen who is an ardent fisherman. He would doubtless give aid and advice to anglers who consulted him. (5) At Makanga on the Kasai, about halfway between Dima and Port-Francqui, there lives a retired hunter named Paul Neels, who will also welcome fishermen, and give them the benefit of his prolonged experience in the jungle.

As stated, Goliath can be found in the lower reaches of the main river, where the local name for it is Benga, and in all the tributaries of the Congo. From the mouth on up one can expect some kind of sport, but the above places have been tried by Dr Gillet, and have been specially mentioned because of the resident white people. It is impossible to live in native villages, and the only other means of getting at Goliath would involve undertaking a full-blown safari. In any case, if Goliath is the primary object of a trip to the Congo, Dr Gillet urges that a large Canadian canoe or a flat-bottomed skiff with an outboard motor be brought along, since such a craft will prove a great aid in securing profitable angling.

As in the case of the smaller tigerfish, the difficulties of catching Goliath are numerous, and also magnified proportionately with the size of the fish. (It is my firm conviction that a large Goliath is by all odds the most difficult fresh water fish to hook and land. Furthermore, in the matter of hooking I do not believe it will yield in difficulty to any salt water fish of no matter what size. *L. J. McC.*)

One of the disadvantages under which one labours in fishing for Goliath is that *lineatus* infests the same waters. How often has an angler intent on a noble trout had

his well-placed dry fly snatched away by a saucy little $\frac{1}{4}$ -pounder! In the Congo an unwelcome surprise of that kind occurs regularly. Even though the interloper happens to weigh about 20 lbs. and fights like a veritable tiger, it is nonetheless annoying to have to waste time and have one's best cast brought to naught by an undesired adversary—particularly if one loses it in the end, as generally happens. Goliath is unfortunately rather hard to locate, at least the big ones are. There is no means of telling where they will appear, and when they do the surprise is enough to upset utterly one's equanimity. Tshikapa is, for instance, a poor place for Goliath, yet the record was captured there by Dr Gillet. It weighed $87\frac{1}{2}$ lbs. and measured slightly more than 53 ins. He believes that fish of this size are actually not unusual. He has often had strikes from fish of evidently huge proportions, which either broke his tackle or threw the hook without ever showing. In Lake Matshi, however, he had on for a few moments a Goliath that surpassed anything he had seen before. He observed it distinctly when it jumped 20 yds. away, shaking its head to throw the hook. It certainly measured 6 ft. in length, and must have weighed 100 lbs.—perhaps 150. It seemed to him at least twice as large as his $87\frac{1}{2}$ -pounder, with which he compared it mentally. At the museum of Tervueren, outside Brussels, I have been shown the preserved head of a Goliath which in the opinion of Dr Gillet must have weighed well over 100 lbs. The maximum size to which Goliath grows is in fact unknown, because the very large fish with which anglers have had to deal don't get laid on a weighing machine. Some time ago a native brought Dr Gillet the jaw of a Goliath that was in an advanced state of decomposition. The man said he had found it in a dried-up depression from which the floods had receded. The remainder of the body had apparently been devoured by jackals or carrion birds. There was enough of this jaw, however, to disclose that it belonged to an enormous fish, much larger than the $87\frac{1}{2}$ -pounder mentioned above. About 20 miles south of Lake Matshi there is another small lake a short distance from the right bank of the Loanga River, to which it is connected by a narrow stream some 6 ft. deep. Goliaths frequently swim through this passage in going back and forth between the Loanga and the lake. The Bahongos, a sub-division of the great Bakuba tribe living in the surrounding district, take advantage of this fishy parade and sit for hours perched on the overhanging limbs of convenient trees with bows and arrows ready to shoot if a chance presents itself. In this manner they account for many large fish, and have reported to Dr Gillet the capture of N'Zao, as they are called there, "the size of a ten-year-old boy." This is all the evidence available regarding the dimensions of Goliath, but it is enough to indicate that it is a monster among fresh water fish, and one worthy of all deference from anglers.

Goliath is a strictly carnivorous fish and its feeding fury is phenomenal. As a consequence, ravening hunger sometimes drives it into absurd April-fool situations. A banana or mandioc tossed into the water has been known to bring Goliath surging to the surface like an angry torpedo, only to plunge down again, twice as angry, when it discovers the deception. In pursuit of other fish it will throw itself so impetuously after them that it sometimes lands ashore from one of its reckless leaps. In such circumstances it quickly regains the water with a couple of acrobatic flicks of its tail. One day Dr Gillet was having a terrific battle (they are all terrific) with a small Goliath of about 25 lbs. At last he got it within gaffing range. At that instant the fish was seized and carried irresistibly away for a distance of 50 yds. by a larger Goliath. Suddenly the heavy strain on the line ceased and the doctor was able to reel in without trouble. He got back the fish he had been playing, but it was lacking a semicircular mouthful, weighing

about 6 lbs., which had been bitten out of the body as cleanly as if punched out by a power press. (I have never heard of anything comparable to this. Among schools of predators, such as piranhas and bluefish, or among aggregations of sharks, or perhaps barracudas, individuals no doubt get bitten in the wild blood-frenzy that attends the capture and tearing to pieces of the hunted prey. Similarly, a small jack of 1 lb. or so might be grabbed from the hook by a pike of some 20 lbs., but here there was no such difference in size, and the incident affords a commentary on the ferocity of Goliath, reinforcing my previously formed opinion that tigerfish as a race head the list as fiercest of all. *L. J. McC.*) The shameful truth is that Goliaths are superlatively cannibalistic. They are their own worst enemies. The best bait for Goliath is a smaller Goliath! It is a matter of water-dog eat water-dog. But this River Congo must be no place for an animal with a weak heart. The four important cohabitants are crocodiles, Nile perch, and the two varieties of tigerfish. Each of these is possessed of an insatiable craving to devour their own kind as well as the others. Though Dr Gillet has no evidence to prove it, he is convinced that tigerfish gobble up young crocodiles with the greatest zest, and crocodiles certainly return the compliment. The Nile perch helps itself to both, and is itself the victim of the others. Thus we have a perfect example of a mutual devouration society—a state of affairs which probably accounts for the comparatively small number of Goliaths that reach full maturity.

In addition to the three fish mentioned above an angler in the Congo is bound to encounter many other varieties among a fishy population that numbers close to a thousand species. There are several catfish of which the largest is *Chrysichthys cranchii*, known on the Upper Kasai as the mende, but in other parts called kamba, or likoko. Unlike most large catfish in other continents, this one is apt to frequent swift, deep water that flows over a rocky bed, whereas large catfish elsewhere generally prefer the slow-flowing muddy parts of rivers. As a consequence, the mende, which is omnivorous, can put up a powerful if unexciting battle for which heavy tackle is required. Its defence, in the opinion of Dr Gillet, far surpasses that of an equally large Nile perch. A specimen of the mende has been captured weighing 131 lbs., and it is thought that it may grow to as much as 220 lbs. Among the smaller catfish, two that fight well are *Eutropius* and *Clarias*. Other fish that will take a worm or chicken gut, and will put up a good performance are: the mbutu (*Distichodus antonii*), and particularly several species of the genus *Alestes*, which will also take a fly and offer a splendid fight on a trout rod. For these fish there must be a short length of fine wire between the hook and the line.

Among the natives, Goliath is regarded as a doubtful asset. They claim it attacks them when swimming, and shows a predilection for biting off their genitals. Dr Gillet has personally had occasion to care for three natives wounded either by Goliath or by a large *lineatus*. The first of these was a water-carrier whose left hand had been seized while he was leaning out of his canoe to wash. He lost four fingers that were severed completely from his palm as if cut off by an axe. This happened in 1920 on the River Tshihumbwe, a tributary of the Kasai. The other two cases were of native boys, both cruelly lacerated: one, at Tshikapa, had a piece torn out of the back of his arm; the other, at Mushie on the River M'Fini, was severely bitten in the thigh.

The methods employed by anglers to catch Goliath do not differ from what one would naturally expect for such a quarry. One can fish from the shore or from canoes, either casting or trolling a spoon, plug, or bait; or one can still-fish with live or dead bait, with or without a float. Shore fishing for the most part is, however, impractical, as there are

few places where one can penetrate through the jungle or the impassable swamps that border the river. The usual method is therefore to go out in a native canoe. Dr Gillet recommends that it be not less than 30 ft. long, and be manned by two natives. The canoes, as he puts it, "have only a relative stability." He therefore urges extreme caution while aboard, especially if one is not a strong swimmer. The crew in any case is apt to be clumsy and excitable. If by any chance an angler were to fall into the river, the natives might very easily become panic stricken and abandon him, for fear of the white man's wrath on being retrieved. Furthermore, because of the difficulty of finding a practicable spot to get ashore, one might in the circumstances have the prospect of a very long swim in waters filled with crocodiles. The doctor's note on this point is comforting to a certain extent. He says: "Although the rivers of the Congo are *all* inhabited by crocodiles—among which the variety *Crocodilus niloticus* is the most numerous, and is reputed to be a man-eater—accidents are comparatively rare; if one falls into a lake or river frequented by crocodiles, one still has a fairly good chance to escape alive."

Trolling appears to be the best method of fishing for Goliath, since all the large ones have been obtained in that way. The ideal tackle is a tarpon rod (8-oz. top; if one wishes to be gallant, 6-oz.), or a Hardy No. 2 "Saltwater"; 250 yds. of 15-thread cuttyhunk line; 6-ft. piano wire leader with 2 or 3 swivels; and a No. 5 or 6 Pflueger "Record" or "Chum," or a Wilson spoon. A powerful triple hook wired on at the head of these spoons is a decided advantage. The reel should have the qualities of a Vom Hofe No. 2-0 or a Pflueger "Capital," with automatic, adjustable brake. An anti-kink lead of appropriate weight should be attached half way along the leader so as to regulate the depth at which it is desired to swim the lure. In addition to spoons, bait in the form of a small tigerfish weighing about 1 lb., mounted on a "Crocodile" or other spinner will prove very effective for trolling. There is one resource available to an angler who is in despair about ever catching Goliath. He can attach a free-swinging triangle hook on a piece of piano wire so that it swims several inches beyond the lure. This is of course unethical, and deplorable in the view of purists, but the triangle may foul-hook a fish on the outside of its head, and thus bring an undeserved success in lieu of utter defeat. In the matter of hooks one must bear in mind the immense strength of Goliath. Ordinary hooks such as used for muskellunge or pike, or those usually supplied on bass plugs are quite inadequate. They are not manufactured for the kind of treatment a Goliath can give them. A powerful gaff is of course necessary, and Dr Gillet, as a result of experience, is also careful to take with him a short spear with which to dispatch the fish. He finds this a great improvement over a priest. Differing from most angling, the excitement is by no means over when Goliath is in the canoe. At that stage it has only begun to fight! One still has to kill the fish, and it has remarkable survival qualities out of water. Those huge teeth are snapping in every direction; one cannot get near it safely, and beating it over the head with a blunt implement ruins the trophy. Thus a skilful thrust with a spear at the spot where the head joins the body is the only satisfactory way to terminate the battle. Finally, one should make use of a disgorger, of the kind that holds the mouth open with a spring, so as to remove the hook. Even after death the fish is to be feared. "Keep away from those teeth!" should be the motto of everyone angling for Goliath.

There is little use in fishing for Goliath with a morning mist on the water, or from the moment that dusk sets in. The best hours are while the sun is up and shining. When trolling one follows the usual practice for finding fish. Along the shores, especially where

there is a sudden drop from shallow to deep water ; downstream from rocks; in the vicinity of half-submerged fallen trees; in the tails of rapids; and at the junction of rivers, are all good places. But trolling haphazard in deep water that seems unremarkable for any particular reason is also profitable. Dr Gillet suggests one special kind of spot, which would not occur to the average angler; he says one should never neglect the bathing pools of wild elephants!

The most enjoyable form of this angling is, of course, casting; but it is usually hard to find a good place on shore for the purpose, and casting a heavy lure from native canoes is complicated. At Lake Fwa, however, Dr Gillet has done considerable casting with a plug. On a certain occasion, fishing for two hours in the afternoon, he had fifty strikes, hooked twenty-two fish, either *lineatus* or Goliath, and failed to land a single one. He has done much better than this, of course, but he mentions the fact to show the extraordinary difficulty of catching Goliath and large *lineatus*. In his opinion a fisherman will only succeed in landing about one Goliath out of fifteen. If by chance the angler has managed to plant one of the barbs of his hooks firmly, he will then be witness of an amazing exhibition. The fish, after a preliminary run of some 50 or 100 yds., leaps from the water, snapping its jaws as many as ten times in succession. Usually in the course of these gymnastics it manages to throw the hook. If, however, the hook holds, Goliath takes to the depths and makes use of every imaginable stratagem. It keeps on fighting until completely exhausted. At last, having subdued the fish, the angler will find his leader twisted into spirals, his hooks pulled out or flattened in an incredible manner, his spinner or spoon out of shape. Rarely after such a combat is one able to use the tackle again without considerable repairs and adjustments. It is not only the hook end of the tackle which suffers, broken rods and lines are a commonplace, and inordinately more frequent than in other kinds of angling. This may be partly due, perhaps, to tackle that is not strong enough, and also to the difficult conditions, with unsteady canoes and unintelligent native boatmen; but mainly it will be due to the savage, unorthodox, and violent defence put up by Goliath himself.

Another point Dr Gillet brings out is that these fish become quickly educated. To quote his words, "Goliath seems to be gifted with a certain amount of intelligence, and a fairly good memory. It was determined at Lukelenge, on the River Bushimaye, in a section where the water is very clear and permits exact observation, that it was useless to continue fishing in the same spot with a spoon for several days running; the first day there were continual strikes; the second day there were only occasional strikes, and the fish would usually turn away from the spoon; the third and subsequent days there were practically no strikes at all. It required a lay-off of two weeks before one could fish there again with good enough prospects to make it worth while."

Of the other difficulties that go with Goliath fishing Dr Gillet makes very light. He ignores completely the hippos which made me feel so squeamish in Uganda; he says that though elephants and buffaloes roam about in the neighbourhood of native villages, they are aggressive to only a slight degree; as regards leopards and poisonous snakes, they abound, but accidents caused by them are exceedingly unusual; the leopards do not attack without provocation, and the snakes, though very poisonous, are accountable for few fatalities. Tropical diseases such as malaria, yellow fever, sleeping sickness, elephantiasis, and bilharziasis are all endemic in the Congo basin, but only affect white men if they are foolish about taking care of themselves. Concerning all these I had inquired particularly of my good friend, the doctor, and he had answered me scrupulously



SEER (India) or EASTERN PROVINCE KATONKEL (South Africa)
(*SCOMBEROMORUS COMMERSONI*)

in the above sense. I believe, however, that he considered me—a dweller in big cities—to be unduly terrified by imaginings of what might happen to me in the jungles of Equatorial Africa. By way of a corrective, at the end of his notes, he added a postscript:

“I perceive in re-reading this that there are certain passages which might inspire a certain apprehension as to the possible dangers that a fishing expedition to the Congo might involve. This would present an absolutely false impression: amoebic dysentery raged in Chicago, tuberculosis and gangsters have certainly been responsible for more victims in that city than have all the crocodiles, poisonous snakes, and cannibals combined in the Congo. I have been living in the Congo since 1911 and am none the worse for it. Provided one takes certain very simple precautions, a stay of a few months here will offer no dangers. You may with a clear conscience reassure the readers of *GAME FISH OF THE WORLD*, and advise them, without mental reservation, to come and try their luck against Goliath, the fresh water champion of the six continents.”

NILE PERCH

By LEANDER J. McCORMICK



WHEN one considers the profusion of mighty mammals in the continent of Africa one is somewhat surprised that its vast lakes and rivers foster only three kinds of really big fish. The largest of these, the Nile perch, is a relatively modern and unspecialised animal, in this respect contrasting with exceptional fish elsewhere, such as: the alligator gar of North America, the pirarucú of South America, or the sturgeons and paddlefish of Asia, that are all members of ancient families, and queer looking to say the least.

In addition to the Nile perch, there is in the Congo basin the mende, a great catfish, comparable to the pirahyba of the Amazon, the pla-bük of the Mekong, and the wels of the Danube. It is, however, like all catfish, a gross creature that can show nothing better than crude sport. Thirdly, there is the Goliath tigerfish, another denizen of the Congo, and therefore off the beaten track. Thus it will probably turn out that the casual traveller, who takes a rod along with him to Africa, will be apt to come across only one fresh water fish of imposing dimensions—the Nile perch, which is widely distributed, and regularly pursued wherever it occurs.

The Nile perch (*Lates niloticus*) is a thoroughly honest fish. Its name tells exactly what it is: a perch inhabiting the Nile, and what a perch! It is by all odds the largest percoid fish throughout the world. But, apart from its size, it differs only slightly from the common perch of Europe and North America—the quarry *par excellence* of every small boy with a hook, a line, and a worm for bait.

As stated, the Nile perch is unspecialised. Its construction and general shape is in fact so typical of a simple, ordinary fish that when J. R. Norman was seeking a model to delineate the bony framework of a normal fish for his *History of Fishes*, he chose the skeleton of a Nile perch as the most satisfactory example.

Glancing at Norman's phylogenetic tree we see that the origination of the perch took place fairly late. Many experimental branches of the tree had sprouted and died off leaving only a few surviving twigs. With the evolution of the *Isospondyli*, however, in the early cretaceous period, a prolific expansion of our present modern fish occurred. It was then that the primitive herrings, salmons, eels, pirarucús, etc., first made their appearance. Thereafter, towards the end of the cretaceous period, the fossils of perch began to be remarked. This was, perhaps, the golden age of fish. From that point the perch advanced towards the commonsense generalised forms which they have since acquired. Subsequently, numerous more recent families of fish have for the most part digressed from the generalised form and become specialised to take advantage of, or protect themselves from, various specific circumstances in the scheme of nature. With specialisation

has also come degeneration, in many instances foreboding eventual extinction. Such should not be the fate of the Nile perch, if we base our judgment on its conservative shape and structure.

I must say when my eyes first lit on this very ordinary looking giant fish my memory did not at once fly back to the perch fishing of my childhood. I was reminded rather of a cod. In colour and form the Nile perch looks like an overgrown cod; but there are differences. The large scales of the Nile perch distinguish it for one thing, and the fins are also dissimilar, besides, one is in Africa and not in bleak northern seas. There is, however, the same dull grey, somewhat marbled body and white belly, the same practical and not too elegant shape, but chiefly one is impressed by the fish's immense mouth and its very peculiar eyes.

There seems to be little doubt that *Lates* originally migrated from Europe, crossing or detouring the Mediterranean with three of its small cousins. It must have gone south up the Nile, and it is now found in all the courses of that mighty river, as well as in the Congo, the Niger, and other west-flowing rivers of the Atlantic seaboard; but its further progress was apparently barred between Lake Tanganyika and Lake Nyasa since it is absent from the latter and also from the Limpopo and Zambesi Rivers on the east side of the continent.

We have the clearest possible evidence that *Lates* was an object of pursuit from earliest times, though how it was caught is uncertain. In the tomb of Rahotet, a court dignitary, at Medum in Egypt, there is a fresco of two men carrying a large Nile perch hung from a paddle. This tomb probably dates from about 2650 B.C., or more than 4500 years ago. Above the drawing is a hieroglyphic inscription, which translated reads, "Capturing the *Aha* fish." At Medinet Gurob, south of Memphis, there are cemeteries filled with *Lates* dating back to the XVIII Dynasty (about 1580 B.C.). The fish was unquestionably an object of worship there in those days.

Egypt is in fact the part of Africa where the sport-inclined traveller can most easily try his luck at Nile perch, as an added feature to admiring the archaeological treasures of the Pharaohs. The first time I saw this fish, which the Fellahins call *Qeschr*, was at Abu Simbel about 58 miles south of Kurusku, where our steamer had stopped to let the tourists inspect the magnificent rock-cut temple of Rameses II. While the captain was holding his ship for the last stragglers of our party I happened to be gazing over the stern, and was wondering—as any angler might—what sorts of fish the Nile contained. Suddenly, in a little recess in the bank close to a clump of reeds, I noticed a huge fish lazily maintaining its position almost at the surface. I was amazed and in the same instant distressed at the thought that I had no tackle with me. This was the only Nile perch I saw in the whole course of the river from Cairo to Khartoum, but it was really a mere chance that I had seen it at all. For one thing the water of the White Nile is exceedingly opaque, and then—as is necessary in every great river—to see fish one must go to parts where they are apt to congregate. These places are, of course, out of the ordinary, and are usually signalled by a radical change in the current.

Everyone knows that a good spot to fish is where two streams meet, or in the pools immediately below rapids. This is also the case with Nile perch, and for that reason the most profitable fishing grounds are at Aswan below the dam, at Wadi Halfa below the second cataract, in the Sudan where the Blue and White Niles meet, and at the Gebel Aulia Dam, about 30 miles above Khartoum. At all of these angling is pursued as a regular sport because the nearby communities are large and it is easy to obtain the necessary

boats and guides. I am convinced, however, that anyone with sufficient hardihood and perseverance will do quite as well or better below the less frequented third, fourth, fifth, or sixth cataracts, and also at Atbara where the River Atbara joins the Nile. Continuing south along the White Nile, which beyond Khartoum is called the Bahr el Abiad, one reaches the Sobat River where a Nile perch of 266 $\frac{3}{4}$ lbs. was caught, and finally one comes to the most famous of all fishing grounds: mosquito-ridden Lake No, where the Bahr el Ghazal forms a small shallow lake just above the junction of the Bahr el Jebel with the Bahr el Abiad. It is at Lake No that "two hundred pounders pass almost unnoticed," some of the largest Nile perch having been reported from there—including one of 280 lbs. though this record requires authentication.

Apart from a trip up the Nile, the next most convenient way to get at Nile perch is via Nairobi where, again, the fishing may come in as a sort of added feature to big game shooting. My own experiences took place by that route, but for the occasion I was fully equipped, having travelled from England expressly with a view to angling. My intention was to have a try in Lake Albert on my way to Murchison Falls, and accordingly while at Nairobi I went to see the chief of the Kenya railway system to obtain a boat. In a very short time, at small expense, and with little trouble I arranged with him to charter the *Livingstone*, a 60-ft., single-screw steamship, built of iron, and burning wood for fuel. He agreed to have it provisioned and manned by a native crew with an English-speaking captain; on a certain date it would be ready for me at Butiaba, a small port on the east shore of the lake. The trip to Butiaba was taken by easy stages. I had invited an English friend, Reggie Hope, to accompany me. We went first by train to Tororo. On the way we travelled along the giddy escarpment formed by the subsidence of the Rift Valley. Below us we passed a shallow lake swarming with such vast numbers of flamingos that its blue surface was transformed to a glorious carnation pink. Disturbed by the train they rose from the water, and like a magic carpet glided back and forth till we had left them behind. But this was only one of the fascinating sights to be seen in this fascinating land. From Tororo we continued by car about 100 miles to Jinja, where the ardent angler can put in a few days of good sport fishing for nkuyu, a kind of barbel (*Barbus radcliffii*) plentiful below the Ripon Falls. Any kind of light salmon spinning, or bait rod will do for these fish, which take a 4-in. silver spoon very readily.

There is an hotel, the Ibis, where one can stay at Jinja. Chiefly, however, the place is interesting on account of the herds of hippopotami that infest the shores of Lake Victoria along the edge of the town. The hippos are protected, and having discovered that man means them no harm, have taken advantage of the fact and become more than friendly. At night they emerge from the lake and make raids on the flower gardens of the citizens—no fence can keep them out, of course. I could hear several of them grunting and snorting beneath my bedroom window. They kept me awake for hours.

The Ripon Falls, discovered by Speke in 1862, are not spectacular since the drop amounts to only 13 ft.; but it is here that the fully-born White Nile has its origin. The water pours out over the rocky shelf of Lake Victoria in a glassy glide. There are no Nile perch in the lake, unless they have been artificially introduced quite lately, as the falls at Murchison have prevented their access. It has been held by geologists that Lake Victoria dried up in an interpluvial period about 15,000 years ago, though before that time it probably contained the fish.

From Jinja we motored on through Kampala and Entebbe to Butiaba. The road is quite passable, and, again, one sees amazing sights. At Entebbe there is a patriarchal





PLATE 70

TILAPIA (*TILAPIA NIGRA*)
NOTE--Female Incubating Eggs in mouth

EAST AFRICA

tame crocodile, named Lutembe, who swims up for a gift of fish if one beats an oar on the water to summon him. Farther on there are protected herds of elephants that roam the countryside; one sees colobus monkeys, vultures, and heaven knows what other weird animals on the way. All the same, one must begin to be on the lookout for tsetse flies: from Tororo onwards they were always seeking to inoculate us with a dose of sleeping sickness.

At Butiaba I found everything in order. An East-Indian named Vaz, who spoke English and Swahili, was captain of the *Livingstone*, and there was a crew of no less than fourteen natives on board. I went out immediately in a large iron whaleboat, and having caught some small fish for bait, trolled them slowly in the hope of enticing a Nile perch. Vaz informed me that this was a recognised method of fishing, but I am doubtful if it is the most effective. At any rate, nothing came. For this angling I was using a 6½-ft. light tarpon rod of split cane with a 6-oz. top. A salmon spinning rod will do just as well. The remaining tackle consisted of a No. 4-0 Vom Hofe reel, filled with 15-thread cuttyhunk line, having a breaking strain of 30 lbs., dry. Attached to the line by a swivel was a 5-ft. piano wire leader (trace) and at the end a standard tarpon hook. Half-way along the leader was fixed an anti-kink lead weighing 1 oz. This anti-kink lead, by the way, is most important when trolling a revolving lure, as otherwise the line is apt to become infernally twisted. The bait was a fish of about 1 lb. hooked through the lips. One may also use such a bait on a "crocodile" spinner.

That night a storm threatened; we slept, however, on the roof of the superstructure, having first rigged mosquito nets to ward off malaria. Before turning in I put out a night line baited with a small, live tigerfish in case a Nile perch might feel hungry. The bait was hooked through the top of the back beneath the dorsal fin in such fashion that it could swim about easily. I may say it is always advisable to have 100 yds. of handline available. One never knows when it will come in useful. This one had a breaking strain of about 90 lbs. I was awakened just before dawn by what I took to be a hippopotamus splashing a few yards from the boat. There was a low mist hanging over the water, but in a short time it cleared and we could see that the supposed hippo was really a Nile perch, putting up a mild commotion on the end of my line. I hurried down to where the line had been attached and discovered that I must have tied it badly. Most of it lay in a ball on the deck, and there was only a single turn looped around a stanchion. Hastily fastening the free end, I gave a tug, expecting to get a strong response, but the fish was exhausted and came in without a struggle. It weighed 70 lbs. I was surprised to observe its extremely unusual eyes—different from those of any fish I know. They appeared to be vitrified, recalling those of a wall-eyed pike, but in addition they glistened with a dull orange glow, almost like a cat's at night. This was all the more curious since by this time the equatorial sun was rising, and in fact was duplicating through the morning haze the orange glare our victim turned upon us. The eyes, by the way, went on reflecting for some time after death. When this peculiar affair had been concluded we breakfasted on so-called "turkey" eggs, but what they really were I have failed to discover even after consulting several oologists. A little later I went out again in the dinghy with a trout rod for some small fish I saw rising. I had not gone far before I heard cries from the boat, and soon realised that Reggie had hooked another Nile perch, this time on a piece of tigerfish. At the *Livingstone* I found my friend considerably agitated. The Nile perch had managed to twist the line round the propeller of the ship so that it held fast. The fish had about a dozen yards of line out and it looked as if it would have little trouble

freeing itself. Luckily, in a short time I managed to release the line, and taking the rod tried to play the fish, but the wretched thing was already played out, and I had to pull it in and kill it. This one weighed 60 lbs. It was in fine condition. Now the strange part of the performance was that Reggie, who had no pretensions to being an angler, was simply fishing to while away the time. He had baited a rather small hook and was using a light bait rod with a 4-oz. tip. The line had a breaking strain of only 24 lbs., yet the Nile perch had been unable to jerk loose. One would imagine that such a fish should at least have the strength to pull its own weight with a sudden plunge, but it did not. It is safe to conclude therefore that, ordinarily, Nile perch in still water cannot be classed as a sporting fish.

Among Nile perch the females grow much bigger than the males. In fact, all the really huge individuals are females. There are two species in Lake Albert; the fully-grown males of the larger variety average about 25 and rarely exceed 45 lbs. The females average 60, but exceptional specimens are occasionally encountered. One of 200½ lbs. has been taken in Butiaba Bay. These large females must live to a considerable age. R. L. Marston has stated that with two friends he examined the scales of a 165-lb. Nile perch, and according to their reading she must have been from 12 to 18 years old. The big fish for the most part frequent the edge of the shelf where the lake descends suddenly from comparatively shallow to deep water. There they lurk ready to swallow any fish, even their own young, which venture into the danger zone. But their favourite food consists of the little tigerfish, ngassa, and the cichlid, ngege, though in what manner such a lumbering creature manages to capture these agile small fish in sufficient numbers to grow so fat is somewhat of a mystery. At night, as in the case of trout and other fish, the big Nile perch desert their daytime lairs and patrol the shallows. This undoubtedly explained our double catch in only about 10 ft. of water. Though my opinion of the fighting qualities of Nile perch is low, it appears that sometimes they put up a satisfactory resistance. There are accounts of such battles when 150 yds. of line have been carried out in the first rush. And, of course, if a 200-pounder were really scared its mere weight might make things awkward. Generally, however, after the first run the brute is apt to sound and sulk, and it may take considerable effort to derrick it up if the water is at all deep.

It was time to leave Butiaba, and we up-anchored to continue our trip to Murchison Falls at the north end of the lake. Though we were disappointed at the poor performance these fish had given us, we noticed that our crew were in extremely good spirits. When lunch was served we found out why. The cook had prepared part of a Nile perch for our meal. It had been cut in fillets and fried. I have seldom eaten a more delicious fish. The flesh was firm and chewy, besides, it had a most agreeable flavour reminding me a great deal of Dover sole. As for the crew, they devoured all that remained of our catch with evident relish. Later the captain came to thank us on their behalf for the feast of mputa, by which name Nile perch is known in those parts.

My next fishing for Nile perch came as an unsought sideshow at the Sennar Dam on the Blue Nile. I had gone there to try for a far more interesting quarry—tigerfish. This angling is described in another chapter, but I will mention here that by mistake I caught several other Nile perch below the dam in extremely fast water. None of these amounted to much, the largest weighing only 40 lbs. These fish insisted on taking a 6-in. Pflueger "Record" spoon in the boiling torrent emerging from the spillway. Having got themselves hooked—an easy matter as their mouths are quite soft—I had to pull

them in and waste a lot of time that I would rather have spent on tigerfish. One of these Nile perch managed to entangle my 12-thread line in the splintered end of a fallen tree. Again the same situation occurred as at Butiaba, but this time the fish had the advantage of a cataract of water to help it in its struggle. It failed to break away, however, and after some delay I was able to bring it in, and found that it weighed 25 lbs. I must say that these fish at Sennar showed considerably more energy than those of Lake Albert, and even favoured me with a few jumps. In this connection an angler who writes under the pseudonym of "Titus" has described Nile perch fishing in the moderately rapid Orashe River, an offshoot of the Niger. He states: "The pull of an 80-lb. giwa (Nile perch) making for its favourite snag is astounding and taxes one's muscles and the strength of one's tackle to the utmost." He continues, "They jump all right, these big fellows, and an awe-inspiring sight they are as they come out of the water shaking their great heads. A fine walloping splash they make too."

Through the courtesy of Barbara Saben, librarian of the Uganda Society, I was put in touch with a planter, T. P. Margach, who must be, I imagine, the foremost angler for Nile perch in the world. His record at Butiaba during 1946 speaks for itself. He fished sixty-two days, always with a companion, and between them secured 627 fish, totalling 9,543 lbs. This does not include about another 100 under 8 lbs. each, which were put back. His best fish for the year weighed 110 lbs. During each of eight previous years he has landed from 2,000 to 7,000 lbs. of Nile perch. The largest he ever caught, though not the heaviest, measured 70½ ins. If it had not been for its poor condition, it would have weighed 150 lbs. He says he has never seen a really large Nile perch jump high enough to clear the water, though they will raise and shake their heads above the surface to get rid of the hook. Margach has sent me an account of his greatest battle, which indeed was unique not only as far as he is concerned, but it also surpasses all other descriptions I have heard of the resistance offered by Nile perch. This is the story in his own words:

"I hooked one on a 'Crocodile' spinner, mounted on a tigerfish, at 5 p.m., and lost her at 2 a.m. I had just landed a young cock fish of 25 lbs., and while fixing up the bait again, the hen came alongside, having followed her mate to the boat, and gave us a good showerbath with her vicious splash. I then hurried to get the engine going and the lines out, and had only about twenty yards out when she took it, and went out over a hundred yards before I was able to stop her. I recovered about fifty of it before she showed on the surface, and she looked a much bigger fish than I had previously seen. As usual with big perch, she sat up on her tail and shook her head from side to side trying to shake out the hooks; but one still held and, as it was the tail hook of the spinner I lost, it must have been hooked on the side of her head. The only consolation I got was when I sent it to the makers; they admitted a fault in the wire attachment. I had then a fairly heavy sea rod and was several times able to get her under the boat, but immediately I started pumping to get her off the bottom she dashed out another fifty yards before I could stop her, and fought harder the last two hours than at first."

He goes on: "Perch under fifty pounds usually fight on the surface and do all they know to shake the hooks out, whereas the bigger ones usually sulk and do all their fighting on the bottom. With a light rod I have several times had to tow them to shallow water as they always follow the boat going slowly, only once with a very light rod has this failed." The method he mentions here of towing a sulking fish is most effective, and is also used in angling for large game fish at sea, where it is called "planing." The same result may

be obtained when fishing from the shore. Usually the angler turns his back on the fish and with the rod over his shoulder begins walking steadily away. The technique in each case consists in getting the fish moving without alarming it by anything in the nature of a sudden tug, and this is accomplished by using the weight of the boat, or of the fisherman's body. Once the fish is started it will offer only a token resistance, perhaps not appreciating that it is moving at all.

The very large perch captured in the fast waters below dams are generally landed in this way. The fish after putting up a moderate defence becomes suffocated and floats up to the surface where its great weight, and the tremendous skin-friction engendered by its sheer bulk in the strong current is quite enough to defeat an angler, unless he can manage to lead it quickly into slack water. In this connection an excellent account has been given by Lt-Col Hasted of the difficulties of bringing in a large Nile perch at the Gebel Aulia Dam. Since about 1939 Gebel Aulia has become the most popular fishing ground of all for Nile perch. Owing to the aeration of the White Nile by the dam, fish which formerly ascended the Blue Nile to Sennar have now changed their habits and favour the Gebel Aulia Dam. Lt-Col Hasted tells how in the conditions above described, when the fish has given up resistance, it will begin drifting slowly downstream and the only chance of saving it is to "walk it up the piers." He also points out the importance of a very long and powerful gaff, so as to be sure of reaching and holding the fish at the earliest possible moment.

From these comments by persons who have an intimate knowledge of what happens, it is seen that this angling may very well bring the surprises and excitements that all good fishing should. I believe, however, that the high reputation which Nile perch angling enjoys has for the most part been acquired because of the handicap of inadequate tackle, or through lack of familiarity with big fish among the anglers, rather than through the game qualities of the fish itself. It seems to me that if the fish is attacked with a medium to heavy tarpon rod, a first-class reel such as a No. 4-0 Vom Hofe, and suitable hooks and line, it will be quickly at the mercy of anyone who has had experience of the kind of battles put up by tarpon, or similar top-drawer game fish.



PLATE 71

CAPE ALBACORE
KINGFISH (*REGIFICOLA GRANDIS*)

SOUTH AFRICA
AUSTRALIA and NEW ZEALAND

THE YELLOWFISH OF THE PROVINCE OF THE CAPE OF GOOD HOPE



THE inland waters of the Province of the Cape of Good Hope are reasonably well stocked with a wide variety of imported sporting fish such as trout and American black bass, but boast only one kind of indigenous game fish—the yellowfish.

There are in fact several species of fish in South Africa which are given this popular name, but two are worthy of distinction. These are the Orange River yellowfish, *Barbus aeneus* (formerly known as *Barbus holubi*), which is caught in the Orange River and its southern tributaries in the Cape Province; and the Clanwilliam Olifants River yellowfish, *Barbus capensis*, which is a closely allied species but confined to the one river system.

The Olifants River yellowfish is thus solely a “Cape” fish, and has lately achieved a well-earned sporting reputation.

The Olifants River system is one of the most interesting in the Western Area, both on account of its size and its wealth in indigenous fish. It is the largest river system draining to the Atlantic Ocean south of the Orange River. The upper source of the main river is on the Witzenberg Vlakte, north of Ceres and very near to the origin of the Breede River. Despite this, the two river systems have no fish in common with the exception of the small scaleless mountain minnow *Galaxias zebratus*.

From its upper sources in the Witzenberg mountains, the Olifants River flows almost due north for a distance of 105 miles to Klaver. For about 20 miles below the Witzenberg plateau, as far as the farm “Keerom,” at the beginning of the lower Citrusdal Valley, the upper Olifants River flows in a rather inaccessible ravine between the Witzenberg-Great Winterhoek range on the west, and the Schurfteberg-Cold Bokkeveld range on the east; and in this ravine it receives the water of many perennial mountain streams coming from the Table Mountain sandstone. This section has been stocked with both rainbow and brown trout, but due to its inaccessibility it is little fished. The striking character of the water of the Olifants River is the entire absence of brown vegetable stain. The water is soft and normally it is crystal clear, carrying very little silt.

In its lower sections, the Citrusdal Valley widens out and the river is easily accessible. The river banks are reasonably open and provide no great obstacles to anglers. The river itself contains a nice proportion of pool to rapid. In the Citrusdal district and through Clanwilliam to Klaver there are miles of white, sandy shallows in the open valley and the water becomes warm in summer. However, the lower river has many rocky defiles and large pools rich in indigenous fish. The irrigation barrages at Clanwilliam and Bulshoek, which hold the water back almost 10 miles, have greatly increased the acreage of permanent water. A few miles below the Bulshoek barrage is an area known as the Cascades. This

consists of a series of large rocky pools interspaced with rapids and raceways. The general width of the river in this area is in the neighbourhood of 50 yds. Between the Cascades and Klaver the Doorn River joins the Olifants. Although reduced to a mere trickle in summer, the Doorn is capable of bringing down great floods and heavy silt in the wet winter months, as it receives the drainage from an area of country to the east which is far greater than the upper Olifants catchment area. North of Klaver the river meanders for about 40 miles via Vredendal and Vlermuisklip to the West Coast.

The Olifants River yellowfish (*Barbus capensis*) is the largest indigenous fresh water fish in the western area of the Cape Province, and a very game species as well. Specimens between 5 and 10 lbs. in weight are common. The authenticated record is a fish of 18½ lbs. A number of fish up to 30 lbs. have been reported and it is quite possible that even larger specimens exist. In large specimens the head becomes broad and the eyes appear relatively small. Such fish are known by the colloquial name of Kalwerkop (calf's head).

The genus *Barbus* is one of the richest in species both large and small and is widely distributed in Africa and Southern Asia. It is represented in Britain by the river barbel and in India by the famous sporting mahseer (*Barbus tor*). The following description of the yellowfish is taken largely from Barnard (1943). The body is torpedo shaped, the length being only 4¼ to 4½ times the depth, excluding the tail. The length of the head divides into the body three or four times. The snout is rounded and projects slightly beyond the mouth. There are 9 rays in the dorsal fin. The base of the first dorsal ray is equidistant between the tip of the snout and base of the middle caudal rays. The second dorsal ray is wide and strong in *B. aeneus* as compared to that of *B. capensis*. In fact this character is one of the most reliable in distinguishing between these two species. The anal fin in large specimens reaches to the base of the caudal fin, but is shorter in half grown and young specimens. The tail is large and powerful, which, combined with the streamlined body, enables the fish to leap and "fight like a salmon."

There are 41-45 scales along the lateral line and 18 around the caudal peduncle. When examined under magnification these are seen to have numerous parallel lines or striae. There are two pairs of barbels, the posterior being longer than the anterior.

As can be judged from their colloquial name, yellowfish are more or less golden or brassy above, shading through yellow to white on the bottom of the belly. The cheeks, opercles and lips are lemon yellow, as are the paired and ventral fins. The juveniles are characterised by an irregular row of oval spots along the sides, composed of chromatophores of a characteristic square or oblong shape.

Along with the normal form of yellowfish in which the lips are not particularly thick and fleshy, there sometimes occurs a remarkable form with very thick lips, called by anglers a rubberlip. The name is very appropriate. Rubberlips occur in allied species from other parts of Africa and also in some of the Indian species. It is not, however, considered by scientists to be a specific character. Except for the lips, a rubberlip from the Olifants River is exactly the same as any other yellowfish.

In spring, which may be during the months of September, October or November, the yellowfish ascend the river in large numbers in search of suitable spawning beds. As in the case of trout, these would appear to be clean gravel beds in the shallow portions of the river. During this ascent the fish lose all sense of fear and many are destroyed, both by humans and predators. The fish mass in countless numbers on the spawning beds and eggs and milt appear to be shed indiscriminately. Redds, comparable to those made by trout, are not used. After spawning, the adults drift back to the deeper waters

and the eggs are left to their own devices. Fertilised eggs hatch in three to five days, depending upon the water temperature. The alevins absorb their yolk sacs and are free swimming within a week. At first they are transparent but as growth proceeds, the chromatophores develop. Eventually they assume the juvenile coloration already described.

Until recently, yellowfish were caught by bottom fishing. Baits included meal, dough, mealie meal, cooked sweet potatoes, cooked green mealies and bread. Blue mottle soap was claimed to be an infallible lure, particularly on a set line. Whichever of these baits is used, however, it must be shaped like a pear to cover the hook completely. Natural baits include earthworms, crickets, grasshoppers and minnows. These two types of baits are not comparable, as, strange to relate, they vary in their efficacy with the time of day and weather conditions. As the fish are often taken in fast water local anglers have always used heavy tackle.

Within the last ten years it has been found that the yellowfish will take an artificial lure and, furthermore, that their choice is fairly catholic. They have given excellent sport on a variety of lures such as large salmon flies, Devon minnows, spinners, spoons and American plugs. As would be expected, this is more sporting than groundfishing and the lighter the tackle the better the sport. A heavy trout rod, light salmon rod or bait casting rod combined with the appropriate line and reel, are all suitable.

The climax of yellowfish fishing is to be had on an 80 miles section below the Bulshoek barrage, particularly at a spot known as the Cascades. This series of deep rocky pools alternating with rapids is a fishing ground to equal any to be found elsewhere, whether in South Africa or abroad. The river is wide and turbulent and the water clear. Furthermore, this fishing spot has the great advantage of being within sight of a main road and only 20 miles from the town of Clanwilliam. Trolling or spinning at the Cascades when the yellowfish are running requires steady nerves and will provide a never-to-be-forgotten thrill.

When the yellowfish are off the take, the Olifants River has other attractions to offer the angler. A smaller relative of the yellowfish, known as the fresh water snook or sawfin (*Barbus serra*), is to be found. These appear to be ever willing to take a trout fly, an earthworm or even dough. While they do not average more than a pound or two they provide excellent sport on a light trout rod.

The sandfish, a species of *Labeo* characterised by the inferior position of the mouth, is another common inhabitant of this river system. They can be taken at all times on a drifting line, with small trout hooks baited with dough.

Certain sections of the river have also been stocked with American largemouth bass and others with smallmouth bass.

Due to the natural coloration of the rocks, the Olifants River Valley is picturesque at all times, but it is during the spring that she dons her festive garb. During this season the countryside becomes a veritable wonderland of flowers. For the bird lover, numerous interesting species are to be seen both along the river's banks and in the surrounding hills.

The Olifants River Valley has a decided advantage over many other fishing grounds, viz., accessibility by road. From Cape Town to beyond Piquetberg, a distance of approximately 90 miles, the road is tarred. Thereafter an all-weather road leads over an impressive mountain pass into Citrusdal. The hotel at Citrusdal provides a base for those wishing to fish the upper Olifants River. Clanwilliam is some 32 miles from Citrusdal and the Cascades are 16 miles beyond on the Klaver main road.

The Orange River rises in the Drakensberg and flows through Basutoland. In its upper reaches it receives three main tributaries, the Sinqunyne from the Maluti mountains, the Kraai from the Barclay East district, and the Caledon from the border of the Free State. With the possible exception of the latter, these tributaries are relatively clear and cool. This is evidenced by the fact that trout have been established in the upper reaches. This is above the highest limits of the yellowfish, however. For some distance below this point there is a mixture of yellowfish and trout, but the farther one descends the river the more unfavourable conditions become for trout, and eventually yellowfish predominate.

From the junction of the Caledon the Orange River forms the boundary between the Cape Province and the Orange Free State. It gradually widens and after its junction with the Vaal becomes a large river, but unfortunately the water is too discoloured for anything but bait fishing.

The Orange River yellowfish of the upper reaches resembles its cousin of the Olifants River in form and fighting qualities. Lower down, however, the fish become larger and proportionately deeper, losing the torpedo shape of the true fighter. What they lack in speed, however, is made up in weight and specimens up to 40 lbs. have been taken on rod and line.

In conclusion, mention must be made of a cousin of the yellowfish, the whitefish *Barbus andrewii* of the Berg and Breede Rivers. The whitefish is a smaller edition of the yellowfish, attaining a maximum weight of 5 lbs. with the average between 2 and 3 lbs. They are torpedo shaped and possessed of a relatively large forked tail. Consequently they are powerful swimmers and game fighters into the bargain. They can be taken on both artificial and natural lures and provide good sport on a light trout rod. The wet fly is fished as for trout but is usually only taken in fast water. Whitefish, however, rise very readily, and it is no uncommon sight to observe a pool literally boiling. On such occasions they have been taken on a dry fly. Natural baits include sweet potato, dough, bread, worms and many others, and local anglers usually ground bait their favourite fishing spots.

The Administration of the Province of the Cape of Good Hope is alive to the recreational and food value of waters well stocked with edible and sporting fish and a determined effort is being made to develop our inland fisheries. It is to be hoped that the day is not far distant when fishing equal to that of the Olifants and Orange Rivers will be available in most waters of the Province.

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ANGLING FOR SHARKS

By W. W. SMALL ("GREEN NYMPH")

Right through the ages men have gone down to the sea in ships and have battled against the elements and braved the dangers of the sea in an endeavour to capture, for good, the denizens of the deep.

The struggle has gone on unceasingly, the hauling of nets with crans of herrings, sprats, or mackerel—the harpooning of whales.

Always it has called for brawn and strength; with the modern methods of today no less than with the crude tackle of yesterday.

But yesterday's battling was of necessity and not as an enjoyment or a sport.

Tunny were caught on handlines and whales were harpooned by hand from row boats.

None but the most hardy of men could hope to survive in the terrific struggle, and none ever thought of undertaking the job other than as a means of livelihood or existence.

Inherent in man, however, is the lust for battle, for adventure, for excitement.

The capture of an animal, a bird, a fish, gave a sense of achievement which, in the passing of time, changed from the mere desire to kill to satisfaction of accomplishment.

The capture of sharks is no exception, and we need not try to trace the evolution completely. If we say "many years ago" that is near enough for our purpose, so let us say many years ago, in the days of the old windjammers, ships would be becalmed in tropic seas for days in succession. The waters were clear and blue, and ships' crews, in what spare time they had, would lean on the rail and gaze down into the glassy waters. Invariably fish would happen along and suggest to the weary watchers a mess of fresh fish in preference to the salt junk from the ship's larder.

The fishing was usually successful and often undisturbed. Occasionally, however, a shark would appear and annex one of the hooked fish.

A shark was a bad omen. It heralded the death of one of the crew; the shark was waiting for his body to be thrown overboard!

An uncle tells me his crew had other ideas. A large hook about 1 ft. long was made from a piece of rod iron about 1 in. thick. The galley fire assisted in the process and a bucketful of sea water was used in the tempering. Fresh water was too precious to be wasted unless tea were about to be made. The finished hook, with no barb, but with the point made keen by filing, was then attached to a few feet of chain and a stout rope spliced to the end link. If only a few fish had been caught it was considered sacrilege to use such a precious meal as bait. A large slab of "salt junk" was used.

Sharks would keep cruising round the ship and it was not difficult to lower the baited hook in front of a likely victim. Some of the brutes were over 20 ft. long.

Sometimes the bait was taken and sometimes inspected for a long time and then refused.

Excitement became intense when the bait was seized, but no attempt was made to strike. The end of the rope was fastened to a stanchion. When the shark had taken out all the rope it was pulled up with a jerk, and then the fun began.

I am told some of the sharks were so enormous that they broke the rope. On one occasion the rope had been fastened to the ship's rail and 10 ft. of the rail had been torn away. A hooked shark was allowed to struggle until it had quietened down a bit and then the hard battle of getting it aboard began.

A really big shark would tax the efforts of six horny-handed seamen to get it alongside, and occasionally they would have to give up and allow the shark to tire itself completely before returning to the struggle. Eventually the beaten fish would be brought to the ship's side and hoisted aboard with the aid of block and tackle.

The crew revelled in the fight, because of their hatred of sharks, but I gather there was so much excitement in the whole affair that the lust of battle had many adherents.

From those and from other such incidents it appears that the sport of shark fishing began, but it was long after sharks had been caught on a hand line that angling was indulged in.

As time goes, it is not so many years since shark fishing was regarded as a sport, in the true sense of the word.

Several countries in different parts of the world now have their shark angling enthusiasts, but the chief ones are New Zealand, Australia and South Africa.

Big game anglers the world over have heard of the hard fighting mako shark of New Zealand and Australia, but I think it will be conceded that nowhere in the world is angling for sharks more persistently indulged in than in South Africa, and nowhere in South Africa more than from the piers at the harbour entrance of Durban.

Every day all the year round one may see "shark men" on the Durban piers. Cape anglers as a body consider sharks vermin, although comparatively small groups of anglers do regard shark fishing as a sport.

Around Hermanus are some particularly keen shark anglers; Bill Selkirk's name is well known all over South Africa.

Let us trace the history of Durban's shark fishing and its methods as being typical of Natal's shark angling. The first attempt to catch sharks with the baited hook was made by handline and seems to have been around about 1880-1890.

Rod fishermen on the piers, fishing for the pot, would occasionally have their bait picked up by a shark with disastrous results. Their tackle was totally inadequate unless the shark were a small one.

It occurred to such men as the late Fry brothers that a shark might be landed on a handline.

Lengths of thick cotton handline were spliced together in 120 yd. lengths, and a few sharks were harpooned and some landed.

150 lbs. was considered a good one, but as late as 1933 the Fry brothers, using Manila rope, harpooned and landed an enormous blue-pointer shark of 1,500 lbs. from the whaling slipway inside Durban harbour.

But let us get back to the piers about the late 1880-1890.

As technique improved in the handlining business stronger and better line was used. Although thin Manila rope was stronger, the main fishing seems to have been done with thick cotton handline, and successes became more frequent. Large sharks were still a problem and required the combined efforts of several men to hold and to

land them. Eventually an empty paraffin tin was used as a float. Its use was twofold: it floated the bait out with the ebb tide and it played the shark. The resistance of the float against the downward pull of the shark was inexorable and, so long as the line held, there was little doubt of the result.

On occasions the bait and float would be taken out by some venturesome soul in a rowboat.

The change-over to rod fishing occurred about 1895, but, although the fisherman had a rod, he had no reel. The line was carefully coiled on the pier, and the bait swung out by hand. It must have been an exciting pastime when a shark was hooked, and it is surprising that many anglers were not dragged into the sea. One can imagine the danger from entanglement with pardonably excited spectators and flying line.

Soon after this reels were used, the wooden Nottingham reels being the first introduction.

The wooden Scarborough type of reel used today was popularised by an angler of the name of Merrin, who had such a reel made for him. Anglers knew it as the "Merrin" reel.

All sorts of rods were used: Indian canes, Cape bamboos and Natal bamboos.

Each angler had his own particular favourite and not so many years ago "Cape sticks," as the Cape bamboos were named, were easily the favourite. Natal sticks were thought to be inferior, but that belief has proved to be erroneous, and Natal bamboos are now the favourites.

As much of the fishing is done from the surf, a rod of about 13 ft. is desirable. This length keeps the line sufficiently high to prevent the oncoming waves from catching it and washing the bait shorewards again. Rods may be bought ready mounted for use, but many anglers prefer to cut and prepare their own "sticks."

Acres of bamboos grow in the vicinity of Durban, and opinions vary regarding the best district from which to purchase a stick. By paying 2s. 6d. per stick the angler may enter the bamboo plantation and select and cut his own.

It is here that the eye of the expert is evident, and it is considered good practice to select a bamboo which has close "notches." The sticks are cut at the beginning of winter when the sap is receding. At least six months should elapse from the cutting of the stick to the straightening of it, and a longer period will ensure that the bamboo rod is still more dry and seasoned. Few men can make an absolutely first-class job of the straightening. Finished rods which are seemingly excellent may break under the severe strain of playing a heavy shark, but the rod which has been straightened and seasoned by one of the experts may be relied upon to withstand any abuse that the most sturdy angler can give it.

A bamboo in its natural state is a zig-zag affair when viewed along its length, and some anglers are so convinced that straightening a rod weakens it that they leave the bamboo in its natural shape and allow time alone to season it and dry it out. The filing down of the knots is another controversial point, the opinion being that this, too, weakens the rod.

The result is that one may see on the piers, and along the surf, batteries of rods of the most weird shapes and with "rheumatic" joints that are not pleasing to look upon.

Being of an aesthetic turn of mind I prefer to see a rod that is perfectly aligned, has the outer surface scraped, its knots filed down and good whippings applied.

I think that the straightening of a rod is a case of "hands," for I know one expert

who makes a hobby of the job. His products are perfectly straight, the knots smoothed down and the outer surface scraped and sandpapered.

The £1 charged is most reasonable—30s. for an extra special finish—and all the prospective buyer has to do is to fix on the rings and varnish the stick. This man's rods are a joy to see and will stand up to the job of shark fishing with reliability. Tradition dies hard, and the old belief that a straightened and scraped rod is useless has no foundation in fact.

The fault has been in the workmanship and the lack of knowledge. A blowlamp and vice is all that is required as far as tools are concerned. Judgment and knowledge complete the outfit.

Each joint is heated until it becomes amenable to bending. The bending—or to be correct the straightening—must be stopped immediately it is felt that the joint is hardening, or stiffening up. If it is not quite straight the blowlamp must be applied again, and again stopped when the stiffening is felt.

The rod is finished with a slight upward tilt at the tip. This is to give kick to the cast and to compensate for the tendency of the rod to take a set in the other direction. When a stick has been straightened it is set aside for some time. If it is not then quite straight the faulty joints are dealt with. Only after the rod has kept its straightness for some time is it considered ready for the fray.

The job requires patience, and it is lack of the latter which has been responsible for so many broken rods. A hurried job means the straining of the knots with the inevitable result. The method is blamed instead of the impatience of the workman.

The number of rings on a rod may vary, but the usual number is six or seven exclusive of the end ring. Protected agate or porcelain has been favourite, but of late years the solid metal ring has been coming into its own. It has the advantage of being unbreakable.

The first ring is mounted about 5 ft. 6 in. to 6 ft. from the end of the rod and the other rings spaced according to the whim of the angler, but it is usual to keep the last three rings fairly close to the tip of the rod in comparison to those lower down.

For added strength whippings may be put at either side of each knot. The whippings are of linen thread about No. 18 or 20.

There is no definite size of shark reel, but the most commonly used is a 6 in. or 7 in. wooden reel of the Scarborough type. It should accommodate at least 600 yds. of 12-cord (24-thread) line.

Some anglers use 8-in. and 9-in. reels, and a few of 12-in. may be seen, but these reels are in the great minority.

Twenty-four-thread line is the heaviest line allowed by the Natal Coast Anglers' Union in its competitions, but records are allowed outside competition rules. Numbers of anglers consistently use 18-cord (36-thread) line, but these are the men whose whole object is shark fishing. Such anglers are in the pink of condition and I can never understand why some assert that sharks are no fighters. It will be conceded that the shark has not the speed of such fish as the marlin, but if a big game fisherman imagines that a shark comes in like a boot I would ask that he be unbiased and, should opportunity occur, that he pay a visit to Durban and have a try for sharks.

He will find the pier shark fishermen excellent fellows and most willing to assist with advice and the use of an outfit. When an angler fishes from a pier he must stop his fish before it takes his 600 yds. of line. No harness is used and there is no mechanical



PLATE 72

RED STEENBRAS (*DENTEX RUPESTRIS*)

SOUTH AFRICA

brake on the reel. The braking is done by a leather palm which is applied by hand to the reel. The only support is a rod bucket strapped round the angler's waist.

A sandshark (really a shovelnose skate) of 100 lbs., or a hammerhead shark of 200 lbs., can give an angler hell. Blackfin sharks of 100 lbs. are no child's play and a bluepointer shark may weigh 700 lbs. or more. Unless it is a sick fish the latter may put up a gruelling fight of a couple of hours or more.

As far as I have been able to find out the bluepointer is related to the mako shark of New Zealand (*Isuridae*), the South African form being *I. bideni*, no doubt after the well-known South African ichthyologist, C. Leo Biden.

As some uncertainty seems to exist regarding the life history of South African sharks, and as a certain amount of collaboration is in progress with a view to rectifying the discrepancies that exist, it will be unwise for me to attempt to give enlightenment regarding the classification of sharks. The tracing of life histories of pelagic fish is no easy matter even for scientists—and I am no scientist—but, in addition to certain similarities to the mako shark, the South African bluepointer shark is a noble fighter and well worthy of the attention it receives from the he-men. Every day sees anglers on the Durban piers, and the week-ends, especially on good days, see a forest of rods from the base to the end of both north and south piers.

The shark fishermen congregate mostly at the seaward ends where they are less disturbed by spectators. The south is the favourite pier for two reasons: fewer visitors go there, and it juts farther out into the sea than does the north pier. It is, however, more affected by westerly "busters" which may spring up very suddenly. Occasional rollers pound against and over the pier, and the angler must be prepared for a wetting.

On really bad days it is impossible to fish from the south pier and positively dangerous to attempt to do so. Such days are not numerous, however, and one rarely sees the south pier deserted.

One must be a member of an angling club to be allowed to fish from the piers or wharves. On presentation at the permit office of his or her membership card, and on payment of a yearly fee of 5s., the angler receives the necessary permission to fish.

Figures are elusive things, but if I say that there are hundreds of shark fishermen in Durban alone, and thousands of other sea fishermen, it will indicate the popularity of the sport in South Africa.

The buses which run from the centre of the city of Durban to the Point Docks are equipped at the rear end with a carrying arrangement for the angler's rods. The south pier cannot be reached by car but there is ample open ground near the base of the north pier.

Let us go to the south pier and see the typical shark fishermen in action. We cross by the ferry boat. We find him plodding ahead of us, his wooden tackle box seat and his rod slung over his shoulder and carrying in his free hand a basketful of bait.

He saunters up to where the "boys" are congregated, dumps his gear, passes a few bantering remarks about the big ones which get away and proceeds to mount his reel.

There is no uniformity regarding the fixing of the reel. Some are held on by screw-grip fittings, some by sliding fittings augmented by strong fishing line and some permanently fixed to the rod butt by a whipping of line covered by insulation tape. The centre of the reel bracket is about 9 in. from the butt end of the rod.

Running the line through the rings the angler now attaches his wire trace, consisting of a length of single wire of gauge No. 22 at one end of which is attached the hook. This may be an O'Shaughnessy, Limerick, Sobey, etc., but the most popular is the Limerick.

Hook sizes are, in my opinion—and I am not an isolationist in this respect—a stupid nomenclature. 8/0, 9/0, 10/0 has no clear meaning, as such sizes may vary slightly with different manufacturers, the gape may be wider, the wire thicker. There would be no doubt if hooks were sold as 6 in. by $2\frac{1}{8}$ in., or 5 in. by 2 in., for these would indicate the length and the gape of the hook in inches.

With the thickness of the wire added there could be no confusion, and all hooks from the very smallest to the largest made could be so designated. A 6 in. hook is for the really heavy sharks, but 5 in. is more often used.

The hook is attached to the wire trace by passing the wire twice through the eye and then twisting the wire round the trace. This allows the hook to have free play on the trace and prevents rigidity. About 2 to 3 ft. above this a "swivel" intervenes, and to this is attached an 8-oz. pyramid sinker. The eye attachment is in the base of the sinker and the sinker is attached to the "swivel" by a piece of fishing line. At the other end of the trace is the top swivel which is joined to the line. The attachment is made by doubling the line and, in its doubled state, making it fast to the trace. The word swivel is a misnomer, as it is no swivel at all but a piece of brass, copper, or galvanized wire twisted up to form an eye at each end.

Some anglers double their line for about 10 ft. from the trace as an extra precaution against the rolling and twisting of a heavy shark.

As the trace depends from the rod while casting, not more than about 10 ft. is handled comfortably, but anglers get over this difficulty by making up a sliding trace in double form.

Two pieces of wire are cut to about 10 ft. long and a swivel attached to one end only of each length. The wire of each length is then passed through both eyes of their opposite swivels. The trace is then completed by fixing a 6-in. hook to the end of one wire and a swivel to the end of the other wire. So to the lower swivel of the top wire—judged as if it were hanging from the rod top—the lead is attached.

An 8-oz. lead is mostly used, but leads, like opinions, vary, and the lead may be as light as 4 ozs. or as heavy as 12 ozs. The lead is now pulled down until it rests against the baited hook. The two swivels at the other end are now tied together with a light line and, to keep the wires together, they are lightly bound in a few places by a turn of line.

In the matter of wire, opinions also vary, and some anglers use cable-laid flexible wire and do not have the hook attachment free-swinging.

The question of expense enters greatly into the picture, as the vast majority of the anglers are working fellows who cannot afford to lose tackle indiscriminately. As will be shown later, quite a lot of tackle is lost through various causes.

Let us suppose that the pier angler has baited up with a slab of fish, a whole mullet of about a pound, or, in the whaling season, that favourite bait of the shark fishing enthusiast, a piece of whale meat.

He is probably waiting for his pal to assemble his outfit. This man prefers to bait up on a single trace of about 25 ft. long and with two hooks in his bait instead of one. The second lad likes his sinker to be from 2 to 4 ft. from his bait and presently he, too, has tied on his whale meat and is ready for the prey.

He motions to the first angler to cast and steps aside to give him room to do so. The sliding trace exponent stands up on one of the concrete blocks, sticks the butt of his rod into his rod bucket and stands with his back to the water. He winds in line until the top swivels of his sliding trace are almost up against the tip of his rod.

The 10-ft. doubled trace depends from the rod point and the 13-ft. rod, and the vantage point of the concrete block, benefit the angler as he makes his swing preparatory to casting. If casting from the shore or from the ground level of the piers he must shorten his trace to suit the occasion. Some cast with the right hand uppermost and some with the left, according to the whim of the angler. The lower hand grasps the reel and prevents it from turning. The side swing cast is used because it would be impossible for an angler to overhead cast with a lead and bait that may weigh 2 lbs. or more. The angler swings his bait to one side and, putting all his strength into the cast, heaves his bait out and releases the reel as he casts. If the bait and lead combined are heavy ones a good caster will put these out to 60 or 70 yds.

The first angler has now cast in, braking the reel to prevent overrunning as the line flies off the reel, and has laid his rod down on the pier and tightened up the thumb screw to prevent the reel from turning. The handles of the reel are upwards and a file or bait knife is laid against the reel drum. This drops off when the bait is taken and acts as an alarm clock to the angler. The second angler now prepares to cast and it is obvious that, with his long trace, he cannot cast after the manner of the first. Laying his rod down, and with the reel handles up, he takes his bait up and pulls it out to about 50 ft. from the point of the rod. He now returns to the other end of the trace and lays his line out in zig-zag fashion until he has pulled from the reel a little more line than he thinks he can cast.

When all is ready he mounts a concrete block and gets weight on his bait by swinging it round his head after the manner of a hammer-thrower at a sports meeting. As his swing increases in speed he allows the trace to slide through his hands until he feels another swivel which he has fixed about 10 ft. from the bait.

This is the signal for greater acceleration of swing, and presently the bait is flying through the air to drop into the water some 60 yds. away. About 80 yds. may be cast.

This angler chooses to stick his rod into one of the many holes that are found along the pier. To prevent chafing of his reel it is customary to put the leather braking palm under the wood.

East London anglers use kites to take their baits out, and the Durban anglers have a few adherents to this style. Reels used by such anglers are enormous things and may hold as much as 1,000 yds. of 18-cord line. As the bait may be taken out 300 or 400 yds. or more, 600 yds. of line would be useless.

In kite fishing the kite is flown out until it has attained sufficient height to support and pull out the baited hook. The angler's line is then tied to the kite string and the kite proceeds on its journey.

When the angler considers his bait has been taken out far enough he pulls on his line with a sudden jerk. This breaks the weak attachment of his line to that of the kite and the bait falls in the water. One must depend on the wind for kite fishing so it is not a very popular method, for there are days when there is not sufficient wind.

Baits being out, the anglers sit around in groups and talk of past exploits and prospects for the day. There is no need to exaggerate about the "big one that got away."

Every seasoned shark angler has been "cleaned up" many times in his career. It takes a real he-man to stop a large shark if it is determined to make right out to sea. It must be remembered that the angler is "anchored" to the pier or shore, and if he cannot outlast the fish before it takes his 600 or 800 yds. of line he loses his whole line by breakage at its attachment to the reel.

Those who have fished with 18-cord (36-thread) line will appreciate the strength required to break such line.

Depending on the season of the year the wait for a shark to pick up the bait may be a long one. But today the sharks are around and presently the falling of a file or a bait knife is heard, or one of the upright rods is seen to dip as line is being pulled from the reel.

The lucky angler springs for his rod, pulling on his leather palm as he does so. He places the butt of his rod in the rod bucket and allows the shark to take line.

When he considers that the shark really means business he strikes hard and viciously several times. If the trace is of the sliding variety this hard striking breaks the thinner binding line and the double trace now slides out to its full 20 ft. length.

The advantage of the long trace is that its length prevents the tail of the shark from cutting the line. Sharks' skins are like sandpaper, and a stroke of the tail would part the line. If the shark has been hooked it goes off immediately in a long inexorable run.

It is customary for the angler to sit down when this happens. He tucks the butt of the rod under his right buttock and sits on it. The rod, just above the reel, is supported by the left thigh above the knee, the left hand seizes the felt-wound handgrasp of the rod. At this stage the bucket is of no assistance; on the contrary, it gets in the way, and so is pushed round to the rear to enable the angler to make use of his palm. The palm must be of strong leather or it would wear through in the initial stages of the fight. The palm is placed between the thigh and the reel so that pressure may be brought to bear on the periphery of the reel in an effort to stop the shark before it strips the whole line.

So great is the pressure exerted that the palm may smoke and burn as the reel flies round. So fast is the spin of the reel that the flying handles are seen as a blurred circle. Every ounce of energy is used in this initial stage and only a very fit man has any hope of stopping the shark if it be a large one.

The line hums in the breeze like a harp string and the angler's quivering and tensed body is swung from side to side as the fish continues to take line with no perceptible effort.

Occasionally the angler will slip his left hand down to the reel to assist in applying the brake, and the left knee alone is now the fulcrum.

If the line does not break—and it seldom does if not fouled—one of two things will happen. The angler will be "cleaned up" or he will succeed in stopping the shark and will then prepare for a long drawn out fight.

A heavy shark hooked in the stomach may be landed in an hour or less but, if hooked in the mouth, the battle may last several hours. Determination may make the angler bend down on the reel in an attempt to lock it. Often he is lifted off his seat by so doing, and must ease up or be taken off the pier. This danger is always present, but it has occurred but rarely and says much for the skill and judgment of the pier angler.

The knee supporting the rod may become bruised and swollen and be so sore that the rodsman may decide to stand up again to rest aching muscles. The rod butt is slipped back to the bucket, and after ten minutes of this position the rod is slipped into the crook of the left elbow and left and right hand locked together over the reel.

The crook of the arm becomes sore and tired and the angler turns his back to the water and his shoulder becomes the fulcrum. Heaving and hauling, standing and sitting, changing and rechanging handgrasps, the battle goes on, for the angler knows that, unless he can stop his quarry, he is beaten. And beaten he often is, for it is physically



PLATE 73

WHITE STEENBRAS (*PAGELLUS LITHOGNATHUS*)
DASSIE (*DIPLODUS CAPENSIS*)
GALJOEN (*DICHOSTIUS CAPENSIS*)

SOUTH AFRICA



PLATE 74

RHINO BARB (*BARBUS MARIÆ*)

KENYA

impossible for any man to stop a large devil fish or manta or a very large shark. One can only speculate on the type of fish or its size when a bait is picked up, and no matter how strong or experienced the angler, the 600 or 800 yds. of line is torn from the reel with no slowing down of speed and no deviation of course. It is an utterly exhausted angler who lies on the pier after such a happening. There has been an all-out muscular effort during the whole run, and human beings may not be so exerted without collapse. Soon after his defeat the angler will be refilling his reel with line and hoping his luck will be better next time.

But the angler we are watching has managed to slow down his fish and, as will be seen by the reel, he has lost about 400 yds. of line. His neck and chest perspire, and the shark has started to cruise around, making up his mind as it were. Any slight slackening of his pull and the angler will dip his rod and wind in a yard or two of slack line and take up his fishing stance again. The shark in turn may suddenly strip off another 100 yds. of line, but the angler feels confident now. The first rush has been stopped and he has a chance and means to make the most of it.

As yet his fellow anglers have made no attempt to help him; he must fight his battle alone. There will be plenty of helpers when the gaff is needed.

He will be more handicapped than helped before long. Some visitor will note the seated angler and the bending rod and a crowd will soon collect and gather round him. Individuals will be told: "Don't stand behind the rod in case the line breaks." The advice will be taken and immediately afterwards forgotten. The shark will swing round and, in an effort to keep his line from being cut by the rocks, the angler will jump to his feet and battle his way through the annoying but pardonably excited throng. In five minutes he may be forced to repeat the performance in the opposite direction.

Graham Perrow, the angler in question, battled with his fish for 4 hours and 50 minutes. He would work to the point of exhaustion, rest a few minutes for a breather while he sipped a few drops of water from a bottle, or, during a particularly strenuous phase, tilt back his head while his pals poured some lemonade into his parched mouth. Fingers become so cramped that they cannot hold the reel handles, so line is slowly retrieved by turning the periphery of the reel with both hands. Presently the reel begins to fill up again, but the operation is a slow one. It does not take long for a shark to strip off 400 yds. of line but the recovering of that amount of line takes a mighty long time when retrieved at a snail's pace.

The sight of the filling reel is inspiration to the angler. He now knows the odds are with him. Getting as near to the edge of the pier as he dares he exerts all his strength to bring the shark to the surface. The gaff, with its detachable head secured to a long rope, is held in readiness.

As soon as the trace appears willing hands will secure it and drag the fish to its inevitable end. The shark may lash about with its tail but it will be unavailing, for several anglers with the sure-footedness of goats will hang on to the rope until a noose is slipped over the tail.

The pulling of the fish on to the pier and the weighing follow as a matter of course.

In the particular instance of which we write Graham Perrow had no such luck. Just as the line on the reel indicated that the appearance of the trace was expected the shark swung a few yards to the right and the line parted on a sunken concrete block. "I expected that," was all the angler remarked. And this after a body-aching battle of nearly five hours!

The remarks of the sightseers are varied and amusing. "I cannot see any fun in that game." "What would he do with the shark if he'd caught it?" "It's dangerous; it shouldn't be allowed."

"It must be an exciting sport." There is no "fun" in a game of chess if one does not understand chess; nothing you may do with a clay "pigeon" if you shoot it; mountaineering is dangerous and is not forbidden, and youth will always be attracted by a sport which provides excitement. Shark fishing has quite a number of fifty-year-old "youths" as enthusiasts. It is seasonal yet sharks may be caught all the year round.

On the piers 18-cord line is mostly used, but the surf angler rarely uses a line heavier than 12-cord if he is after sharks.

Having to cast from ground level, and not having deep water immediately at his feet, he will get more distance with 12-cord line than he will with 18-cord. Most surf anglers use 9-cord or 10½-cord line, and a few use 7½-cord. I should say that the most popular line for shark fishing in the surf is perhaps 10½-cord.

A slab of fish bait is general, usually of mullet, but if after sandsharks, crayfish is best. The Natal sandshark is not really a sandshark, although it is similar. It is a shovelnose skate.

The surf angler who is a good caster may put his bait out to 80 yds. Greater distances are done at the casting tournaments held under the Natal Coast Anglers' Union rules. Using ordinary fishing rod and reel, with 7½-cord line and an 8-oz. sinker casts of 125 yds. are frequent. The record is held by G. I. Sykes with a cast of 157 yds. 6 ins.

Battles in the surf are not so prolonged as they are from the piers because the sharks hooked are not so heavy, although there are exceptions. If, however, a sandshark of about 100 lbs. is hooked, or a hammerhead of similar weight, the fight is strenuous and fast, for these fish are active and vigorous.

The "sandie" has a habit of trying to get to the far side of a sandbank and digging his nose in the sand. No one sees him doing this and it is mere surmise, but once he succeeds in getting to the far side of a sandbank the task of getting him back is no easy one.

As already indicated, the shore angler cannot follow his fish. In consequence he cannot obtain a pull in the opposite direction. The all-out effort to stop the shark from getting to the other side of the sandbank is "Hobson's choice." Getting it back is usually more difficult than stopping it before it has reached the hazard. The pier angler, at the closing stages of the battle, has the menace of the rocks to contend with. If fishing by a rocky coast the surf angler is similarly handicapped. If beside a sandy beach the shore angler's task at the end of the fight is a herculean effort.

In South Africa, especially on the Natal coast, the surf rolls in heavily. To get a beaten shark near enough to be gaffed the angler must have very good judgment.

The fish is wallowing in shallow water about 30 yds. from shore and just about where the backwash starts to operate. Even were the angler strong enough the line would never hold against the weight of the shark and the pull of the backwash.

As a runner at the end of the race the angler is partly exhausted but has still a sense of judgment. Watching the oncoming waves, as does the swimmer with a surf board, he waits until the wave lifts the shark. Clamping down on his reel he stands braced for the opportune moment. He both sees and seizes it and runs back and up the beach, keeping the shark just abreast of the wave.

An error of judgment may mean that the backwash takes the shark seawards again, and the whole backbreaking performance has to be repeated by a body that is already tired.

But the experienced angler rarely miscalculates, and the synchronised effort of the angler and wave is a wonderful sight. It is such a culmination that draws the shark angler week after week to the surf, and none but the enthusiast can appreciate the thrill of satisfaction that the rodsman experiences when he sees the man with the gaff wade out into the surf to meet the oncoming shark, time his opportunity perfectly and, with the skill and daring necessary for such a job, stick the gaff into the fish. It is futile to compare big game fishing from launches. We hear it said that the launch angler wears harness, that he may follow his fish if it appears that all his line may be stripped. The launch angler may reply that sharks have not the speed of game fish like the marlin, tunny, and sailfish.

The comparisons bear little resemblance and the types of sport are different.

I do not think I am wrong, however, when I say that I cannot imagine many women muscular enough to get in a beaten shark by an oncoming wave, nor sufficiently strong to heave up a shark from the deep water around the piers. I may be wrong but, at the end of a strenuous tussle, it is a herculean effort for a fit man. The lack of a harness or of a mechanical brake on the reel increases the difficulty.

Some suggest it would be undignified and unladylike but the days of such silly utterances are past. They were made when women were fighting for the franchise, when they entered parliament, when they flew aeroplanes, drove trucks, and rode a horse astride. It may be that I am wrong and that I yet shall see a woman land a 500-pounder from the surf or piers and I shall feel mighty humble! It should happen in South Africa the shark men will be the first to congratulate her. Nowhere would it be possible to find a more courteous and sporting body of good fellows. It is true that, several years ago, Miss Donald landed a big shark from the north pier of Durban. That shark, however, had just been hooked, played, and lost by two anglers. Miss Donald's trace then became entangled in the two broken lines and she managed to land the shark.

The whaling season influences the shark fishing around Durban. May, June, July, and August are the best months. As the whaling ships come in with their whales tied alongside, the scent of oozing blood attracts sharks right into the harbour entrance, at the end of which the whales are loaded on the factory railway trucks.

Many sharks are caught from the slipway and from the surf at the "whaling station" where the factory is situated. The factory waste pipes lead into the sea and shoals of sharks may be seen here at times.

How large some of these may be is a fairly good guess if we may judge by the dorsal fin. How heavy a shark may be caught is also speculation, for the big ones do get away by virtue of their strength and size.

As an indication of what may be caught on rod and line from the shore, however, here is a list of record sharks that have been landed. It is taken from the Natal Coast Anglers' Union Constitution and Rules Book and includes both Union and Non-Union members' record sharks.

Bluepointer	..	..	..	880 lbs.	..	..	M. R. Geerds
Black shark	..	..	..	735 lbs.	..	..	J. B. Steele
Ragged-tooth shark	..	..	..	649 lbs.	..	..	Eric Scott
Blackpin shark	..	..	..	274 lbs.	..	..	E. Hilder
Grey shark	..	..	..	720 lbs.	..	..	T. Low
Tiger shark	..	..	..	920 lbs.	..	..	F. Keppler
Hammerhead shark	..	..	..	664 lbs.	..	..	B. W. Blaine

This latter fish won for Bob Blaine a world record awarded by the International

Game Fish Association of New York. The hammerhead was caught on 18th May, 1939, after a fight of two and a half hours. The line was 600 yds. of 36 thread. The fish was hooked from the south pier and took the angler down to its base and then on to the beach where it was gaffed by a Hiawatha Clubmate, Don Currie. Blaine doubts if it could have been landed if hooked in the mouth, for the hammerhead is a vicious fighter.

The hook had passed through one gill slit and had hooked up in another; a snoek's head was the bait.

On 17th March of the same year Blaine landed a bluepointer shark of 1,295 lbs., on whale meat bait, and a sliding trace of 30 ft. Unfortunately, he could claim no record, as he had to hand over his rod to another angler after battling with the shark for four hours. The fish threatened to take all his line off the reel, and in a desperate attempt to stop it, his hand became cramped by the sustained pressure and he had to give up. This angler is a powerful fellow of about 200 lbs., and a fisherman of experience, and it is indeed most unfortunate that he was unable to secure two world records in the same year.

Sharks of 2,000 lbs. and over have been caught in fishing fleet nets. Whether an angler will some day land one only time will tell. Should it become a reality some individual will hope to beat it. I hope it, and he, does.



PART SIX

THE MIGHTY MAHSEER

By LIEUT.-COLONEL R. B. PHAYRE, M.C., F.L.S.

'There he met the mahseer of the Poonch, beside whom the tarpon is as a herring, and he who lands him can say he is a fisherman.'—KIPLING, "The Day's Work." (The Brushwood Boy.)

I—GENERAL



It has long been felt that the study of mahseer was very incomplete. In the standard works of Hamilton, Day and H. S. Thomas there were many gaps which could only be filled by further research work. For such study it is obvious that a number of specimens would be required for minute examination. In a country like India the various waters often lie a thousand miles apart, and a tropical climate presents formidable difficulties both in the preservation and transportation of specimens, especially in the case of fish which may attain a size of one hundred pounds and over.

Fortunately, this great labour has been attempted by Dr S. L. Hora, D.Sc. and it could not be in safer hands, for Dr Hora's knowledge of Indian fish in general, and mahseer in particular, is second to none. Early chapters of Dr Hora's *Game Fishes of India* have already appeared in the *Bombay Natural History Society's Journal*. But, as this scientist is the first to admit, there is still a great deal more to be learnt on this subject, and the lack of further data is holding up his work.

I had the privilege of discussing this topic with Dr Hora fairly recently (1944) in New Delhi, and I make most grateful acknowledgment both to him and to the Bombay Natural History Society, for permitting me to mention in my writings some of the conclusions arrived at, without which any modern article on mahseer would, in my opinion, be of little value.

Family

The mahseer belongs to the very large carp family—order *Cyprinoidea* of the *Physostomous* fish; family *Cyprinidae*, sub-family *Cyprininae* and genus *Barbus*. They are usually called barbels for they differ from the true carp of Europe in their size, flavour, activity, etc. (Hora).

Etymology

Originally it was thought that the dialect terms for mahseer denoted a fish with a big head, or perhaps "lion-hearted"; but the modern conception is that the somewhat similar vernacular names for mahseer imply that it is large-scaled, and this would appear

to be the correct conception. J. R. Norman in his *A History of Fishes*, when comparing the (mahseer) scales with the two-inch scales of the tarpon says: "Those of the (large) mahseer are . . . each of the same size as the human palm."

Coloration

It seems now to be generally accepted that the coloration varies considerably according to the waters in which the fish is caught. It is impossible for any one scientist to visit all these waters, and he is hampered by the fact that these brilliant colours cannot be preserved as they fade so quickly after death. The various dazzling shades of blue, jade, gold, silver, copper, red, and even black, very speedily lose their brilliance, fading into drab, nondescript tints.

Teeth

The powerful protrusible lips are a feature of the mahseer, which obtains a great deal of its food by suction. The rubbery lips and mouth are extremely strong, but, like the other Cyprinoid fish, there are no teeth in the jaws. The teeth are situated in the throat, ten on each pharyngeal bone arranged in three rows of five, three, and two. As Dr Hora tells us, "they are not used in catching or holding prey, but are employed for tearing and masticating purposes."

As any mahseer angler will relate, a powerful spoon can easily be crushed into a shapeless mass, and heavy, brazed hooks flattened out completely. This is rather a controversial point, for many anglers will tell you that this crushing power comes from the rubbery mouths, and will produce evidence to show that badly damaged spoons and hooks are sometimes embedded in the lips. This fact is admitted, but it is considered that the lure is first crushed by the teeth, the hooks getting a fresh hold as the line pressure forces them forward. Major A. St J. Macdonald in his *Circumventing the Mahseer*, produces a strong argument when he mentions that native *shikaris* would not so readily put their hands into the mouths of live fish (to disengage hooks) if they were running the risk of having their hands and wrists pulped by the mouth and lips of these fish.

Sex

This is usually ascertained by an examination of the gonads, but better still by a post-mortem examination of the ovaries or milt. Many anglers will tell you that sex can be determined by the fleshy protuberances and hypertrophied lips, but the scientist does not agree. A curious fact emerges; namely that a far greater percentage of females are caught than males; in fact nearly all the large mahseer landed are females. To check this statement, a post-mortem examination is essential. If small spherical ova are found, the fish must be a female, for they are lacking in the gonads of the male fish. Further evidence of the percentage of females to males caught would be of considerable interest, and the results might well be surprising.

Identification

To complete the survey of mahseer, it has already been stated that far more specimens must be examined before exact classification can be completed. It now seems obvious that there are more species than indicated by the earlier writers (Day, Hamilton, Jerdon and Thomas), although Thomas, in the later editions of his *Rod in India*, believed that

more would be found than he indicated in his earlier editions. Commenting on the difficulty of assigning proper scientific names to them, Dr Hora tells us:

“In dealing with the mahseers, this difficulty is greatly accentuated, because characters, such as scale-counts, fin-rays, coloration, etc., usually employed in distinguishing various species of the carp tribe have proved of little use in separating the large-scaled barbels of India into species, sub-species or varieties.”

Sir Reginald Spence and Mr S. H. Prater in their *Game Fishes of the Bombay Presidency* (*Bom. Nat. Hist. Soc. Journal* Vol. XXXVI, No. 1 1932), state:

“It is not yet possible to discuss the races or even the species of fish now known as *Barbus tor*. Possibly six or seven different forms or even species of this fish may inhabit the Indian Empire.”

For anglers who seek a practical method for identifying their captures, once again we have to turn to Dr Hora. Writing in December, 1941, he states:

“The following key may help to distinguish specimens, over 9 ins. in length, of the species of the large-scaled barbels of Northern India and Burma:

I. Labial groove interrupted in the middle; lips comparatively thin and never hypertrophied; cheeks covered with tubercles.

Barbus (Lissochilus) hexagonolepsis (McClelland)

The *katli* of the Nepalese and *bokar* of the Assamese. The chocolate, olive, black and red mahseer of Burma.

II. Labial groove continuous; lips thick and well formed, sometimes produced into adipose flaps; cheeks smooth.*

A. Length of head considerably greater than the depth of body.

Barbus (Tor) putitora (Hamilton)

The golden or the common Himalayan mahseer including greyhound and thick-lipped varieties.

B. Length of head considerably shorter than, or more or less equal to, depth of body.

1. Length of head considerably shorter than depth of body

Barbus (Tor) tor (Hamilton)

The deep-bodied mahseer.

2. Length of head more or less equal to depth of body.

Barbus (Tor) mosal (Hamilton)

The copper mahseer.”

Specimens of the black mahseer have been taken of more than one type. It is thought to be a case of melanism rather dependent on its surroundings—light, temperature, climate, etc.

To these may be added the mahseer of Southern India:

Barbus mussullah (Sykes) (doubtful)

Barbus (Tor) khudree (Sykes)

Barbus kolus (Sykes)

Dr M. Sutor, after careful investigation, is of the opinion that *mussullah* is the same as *khudree*.

* “NOTE.—In some of the mahseers of the Decan and Southern India, tubercles are present on the cheeks. These forms will be dealt with subsequently.”

II—GEOGRAPHICAL DISTRIBUTION

At the time of writing it would seem premature to attempt to fix the boundaries and distribution of the various types of mahseer in the East until the scientists have had further opportunities for more research work. Referring to *Barbus (Tor) putitora* Dr S. L. Hora writes:

“It is found all along the Himalayas . . . Though it is reported from China also, in the present confused state of our knowledge it is very difficult to form an exact idea of its range of distribution.”

It certainly exists in Burma and appears to have been recognised in Siam, Malaya and the Philippines. As regards the western boundaries of Northern India, K. de B. Codrington, in the *Bombay Nat. Hist. Soc. Journal* (Vol. XLVI), writes:

“It seems clear that the Hindu Kush—Kabul Kohistan watershed is its western limit in this region.”

Any attempt to give a detailed list of the mahseer rivers of India alone would fill chapters. During the flood waters of the monsoon season they are sometimes taken in water-courses which are completely dry for, say, nine months in the year. As a guide to the best localities, rivers issuing from the hills and mountains will hold good fish and excellent specimens may be captured in the various lakes. Good sport is usually to be had at the junctions of rivers; another favourite site will often be found in the head-works of the various canals.

Broadly speaking, therefore, reasonable sport may be expected in the rivers over the length and breadth of India, Assam and Burma, especially when their sources are in the mountains. Mahseer are also to be found in a number of the canal systems; it is not unreasonable to assume that fry are washed down through the canal sluices at the head-works of these canals.

III—BREEDING HABITS

I have been privileged to meet Dr Hamid Khan Bhatti, Ph.D., Game Warden of the Punjab, to whom I am grateful for permission to use some of his investigations in my writings. Dr Hamid Khan has done some useful work in studying the sex organs of the mahseer, the result of his research work is embodied in the *B.N.H.S. Journal* (Vol. XLI). After mentioning that he found “hardly any evidence to corroborate the views of Thomas (1897) that the mahseer lays its eggs in batches, just as a fowl lays an egg a day for many days,” his conclusion is:

“The mahseer, however, as a study of its sex organs reveals, seems to spawn *first*, in winter, in January and February, *secondly*, in May and June, when the snow melts and the rivers are swollen, and *thirdly*, from July to September, when the rivers are flooded with the monsoon rain.”

He mentions however that these sex organs, preserved in 5 per cent formalin solution, came from various rivers. Dr Hora commenting on this mentions:

“Unfortunately, Dr Hamid Khan had no opportunity of examining the actual specimens, so it is difficult to say whether all the samples of gonads studied by him belonged to the same species.”

As others have expressed doubt whether the mahseer really spawns three times a year or not, further evidence should be awaited. The point is an important one for anglers, for the best fishing is to be had when the mahseer migrates to the spawning grounds and during its return to its normal localities. Much information can be obtained by

observation. As one collection of fish moves out of a big pool, a fresh, migratory batch may come in; this has a definite bearing on which months of the year will be the most favourable for good fishing.

IV—MIGRATION AND FISHING SEASONS

When mentioning rivers perhaps 1,000 miles apart, conditions naturally vary, from the cold seasons of North India to the tropical climates obtaining in the South. The months which offer the most favourable conditions for mahseer fishing are generally accepted, perhaps, as the end of February to the beginning of April and October to November. I went to some trouble to examine records of big specimen fish caught in widely scattered localities; although more mahseer were caught in the months mentioned above, the largest fish (almost invariably females) were taken in December and January. My personal preference is to fish after the monsoon season (i.e., autumn and winter).

Having been stationed nearby for several decades, and having gone up to Kashmir on many successive years, perhaps an illustration of migration will be permitted which may be found typical of conditions elsewhere. Tangrot is often described as the "Mecca of mahseer fishing." It is situated at the junction of the Jhelum and Poonch rivers. Many anglers, and several writers, have noted that there are warm springs at this famous junction pool, where mahseer like to collect, especially in December and January.

Further research work in this area, as regards the breeding habits of mahseer, should lead to helpful results. Many anglers familiar with the Kashmir road will confirm that there is an annual run of mahseer, in the summer, from this junction pool at Tangrot, through Domel and Rampur, to Ningle and the Wular Lake, a distance of some 200 miles, and they usually reach Kashmir early in July. They appear to breed in August near the apex of their migratory journey, after which they return downstream. Consequently, at some seasons, certain areas will be found to be full of fish, and at others, entirely denuded.

Another breeding season appears to take place after the flood waters of the monsoon, and with the melting snows from the mountains, in the lower water found in the Poonch about January and February. It is freely admitted that our present knowledge is as yet scanty, and much more research work by a team of scientists is most desirable, but it is a formidable task.

The increasing timber trade in many rivers is causing considerable damage to migrating fish. Logs, mainly used for sleepers, are put into the rivers at the felling area and come hurtling down the rapids of the flooded rivers until they reach their collecting stations, perhaps some hundreds of miles downstream. As they cascade over the rocky river beds, making reverberations like distant gun-fire, many fish are wounded or destroyed by concussion, if not by direct hits.

Spent Fish

It is not so easy to detect a mahseer that has recently spawned as would be the case with *Salmonidae*, for they "mend" quickly. Thomas, in his *Rod in India*, comments on the fact that members of a party all became ill after eating a mahseer which had recently spawned. Norman, in his *History of Fishes*, mentions:

"... other fish, although not normally harmful, may become highly poisonous at certain seasons, and especially at the breeding season when it is dangerous to eat the roes."

This may account for the prejudice many have in India against eating the roes of fresh water fish, which is often quite unjustified.*

Location of Fish

Owing to their preference for clear water, the lies of the mahseer can often be seen. Swirls, when attacking fry, will also indicate its presence; it does not leap like a salmon but has a humped-back rise. Favourite localities in the water are mainly governed by the likely spots where suitable food will be washed down.

River junctions are usually very good. One favourite pool of mine lies at the confluence of two rivers; one usually coloured, and the other as clear as crystal. This merging point is defined by a clearly marked line; the best fish lie under this line.

Like many other predatory fish, mahseer prefer to station themselves at the heads and tails of pools, they also frequent the smooth runs. Seek them also in the fast-moving "white-water" of the rapids, especially when the temperature is warm, for they like warmth and oxygenation. On the colder days, they may sink down into the depths, especially if there are any warm springs about.

They like rocky bottoms; if the river beds are very muddy, it is not at all a favourable sign.

V—TACKLE

The mahseer is an omnivorous feeder, but is mainly a bottom feeder, especially the really large fish. As most experienced mahseer anglers will tell you, heavy specimens are caught by spinning, live and dead baits, spoons and plugs and, for the larger varieties, it is essential to fish deep. For a record fish there is no getting away from the fact that a paste bait, fished near the bottom, is likely to be the most successful, although the average angler gets far better sport by casting and spinning, while some advocate trolling.

The rivers in India and the East vary greatly, from the dancing hill streams to the vast sullen rivers, consequently a plan of campaign has to be devised to suit each locality. Such a plan will, naturally, affect the tackle to be used. Therefore, before considering this point, each angler should observe the water to be fished and then make a mental appreciation of the situation, studying the different factors which vary so greatly in each locality.

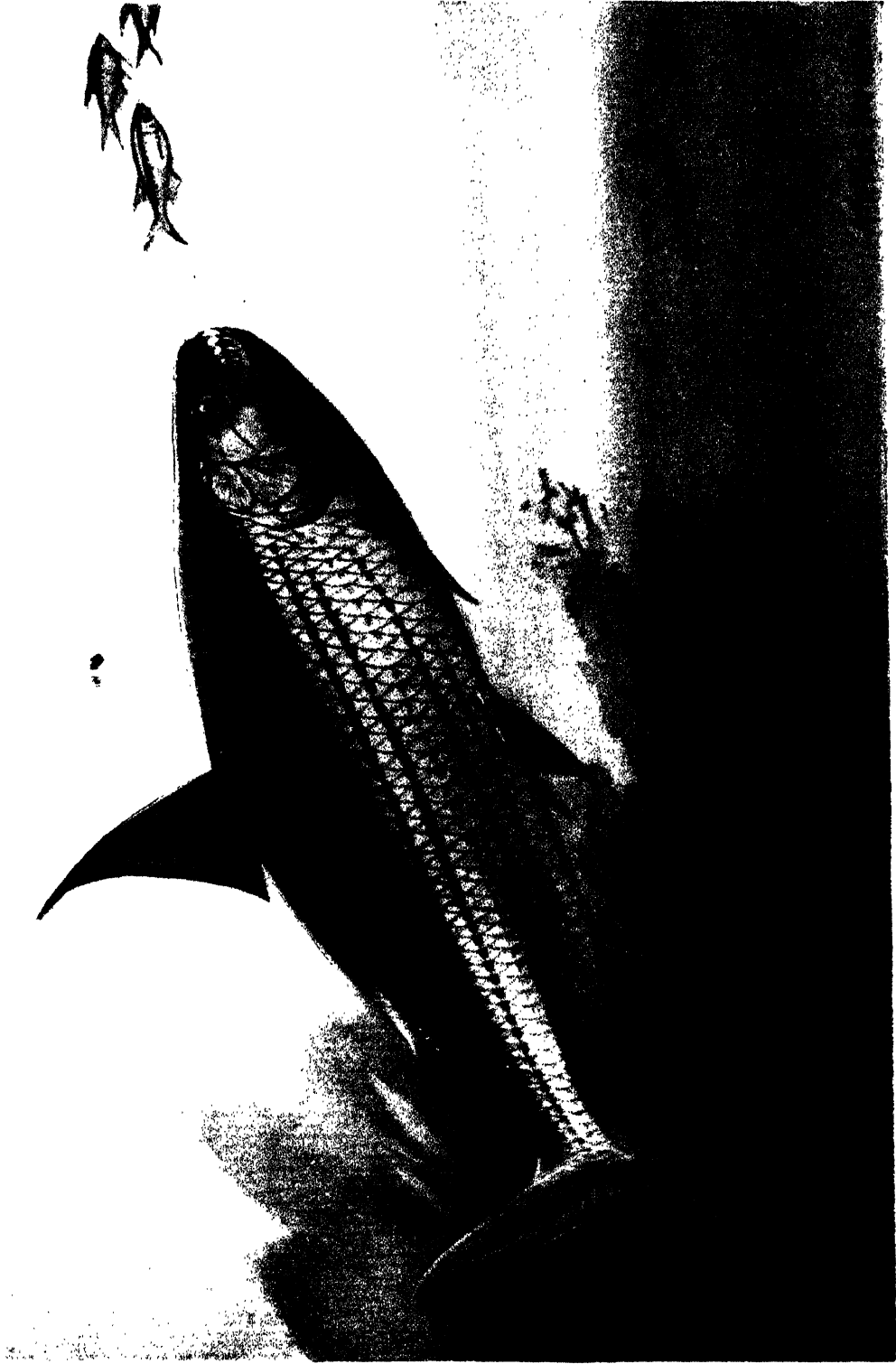
Feed

Here, for instance, are *some* of the baits that a mahseer will take. Paste (*ata* and *ragi*), meat, chicken's entrails, frog, grasshopper, fly, fruit from overhanging trees (fig, mulberry, etc.), algae, weeds, leaves, flower petals. Fish (especially disabled ones), fry (*chilwa* and similar varieties), gram, pop-corn. For the artificials—spoon, phantoms, wagtails, fly and plug baits.

Observation

Many of the waters are crystal-clear and much valuable information regarding the lies of fish can be had for the asking; as the Army inculcates: "Time spent in reconnaissance is seldom wasted." If I may be permitted to express a personal opinion, for what it is worth, I would recommend getting up on high ground, such as a small cliff,

* This point was mentioned in my book *Indian Fishes and How to Catch Them*. (Now in publication by Thacker & Co., Bombay).



overlooking a big pool. Frequently the water is like glass, right down to the depths, when an astonishing sight presents itself with the fish lying in ranks with the monsters in the van, and the light-hearted youngsters cruising about in the rear.

Sometimes I have persuaded a benevolent brother-angler to fish a variety of baits, allowing them to drop downstream, at varying depths, over and through the ranks of these fish. The result of such experiments can only be described as absorbingly interesting. By this means not only is it possible to obtain a clear indication of the size of the fish in the water—and they vary during the migratory and non-migratory seasons—but also to study the reactions of mahseer to the various types, I may even say rhythms, of the various baits used.

As a disciple of the late J. H. Norman and Professor J. Neilson, the lateral-line theory (its cell-like structure records vibration) is one which has always had a personal appeal. There are occasions when any angler can experiment for himself. He may well find, as I have, that the different vibratory waves set up by, say, a plug compared with a spoon, or a spoon with a phantom, may cause any fish in general, and a mahseer in particular, to become inquisitive and perhaps to attack.

From a concealed view-point, it has often been possible to watch a mahseer charging a shoal of small fish and to note how it will pursue a disabled quarry. In my opinion, the plug-bait more faithfully reproduces the gait (and perhaps rhythm) of a disabled fish, and so imitates this role better than any other form of lure.

In writing an article on tackle, without the least wish to appear dogmatic, it has been found impossible to avoid giving personal opinions. Many helpful tips have come from others, but mostly they came from trial and errors (chiefly errors!). Many time-saving and helpful devices are so obvious and simple that they would occur to anybody. Hundreds of mahseer anglers may have adopted them years ago and may approve of them, others, of course, may disagree entirely; but that is the way of Waltonians all the world over.

The characteristics of the mahseer are that he will seize the bait with a mighty rush, taking out anything up to 200 yards of line; after this he will fight gamely but will not usually make such a long run again. Any attempt to check this rush is futile; tackle needs to be frequently inspected to ensure that no hitch occurs, otherwise the fish will be lost.

As in salmon fishing, at one end of the scale you will find anglers who insist on using heavy rods and heavy tackle; at the other end are strong advocates of the light line and steel rods. Perhaps I may be forgiven once again for giving a personal opinion on this rather controversial subject. Having had many happy days with a Hardy greenheart 14-ft. rod with strong tackle, I have also enjoyed many thrills with a short steel rod and light lines, which will account for heavy fish and which may land a fish in a shorter time than the heavier gear. In small streams, for lesser fish, a trout rod with a $\frac{1}{4}$ -in. or $\frac{1}{2}$ -in. fly spoon and the threadline can also give grand sport.

As a purely personal opinion, for what it is worth, I would advocate all these methods, for each has its particular fascination. With the heavier rods, the fatigue is great; arms and limbs ache and, at the end of the fight, the angler is only too ready to take a long breather; they are definitely more suited to the younger generation. The steel rod is far less fatiguing; the constant strain tells in the end and there is a feeling of justifiable satisfaction in being able to conquer a very worthy opponent on such flimsy tackle. As *anno Domini* crept on, I must confess I preferred lighter tackle to that used in my youth and I have by no means been a loser thereby.

Rods

My preference goes to split-cane spinning rods and to the native ringal cane, mounted with the best agate rings. The rod should be slightly whippy, both for casting and for counteracting the jar of the initial rush; a stiffer rod may not get such a good hook-hold and so a break may occur. A steel-centred rod has always been an anathema to me in the East, for, more often than not, it does not stand the climate. Ringal cane will withstand the climate and, when better known, it is felt there will be a greater demand for this material. It has the advantage of being inexpensive. Prior to the Second World War, a good ringal rod could be purchased from at least two well-known Calcutta tackle firms for a sum of about £2. On the other hand, a split-cane rod may sometimes deteriorate when exposed to the adverse conditions of a damp, tropical climate; I have also found greenheart may become brittle and snap asunder.

As regards the length of the rod, personal preferences count for a good deal; it is suggested that the angler will find that a spinning rod of about $9\frac{1}{2}$ to $10\frac{1}{2}$ ft. will enable him to hold heavy fish. Should heavy weights be used, for deep fishing, a more powerful rod is recommended comparable with the strain involved.

Steel Rods

There are many types on the market. For mahseer up to, say, 40 lbs., a 5-ft. rod weighing about 5 ozs. should give good sport; for heavier fish, a $5\frac{1}{2}$ -ft. rod weighing about 7 ozs. is probably better. For such work I prefer the one-piece, while for light fishing, I have had a lot of fun with a light four-piece tubular steel rod of about 6 ft., which packs easily into a suit-case and so is a convenience when travelling with a minimum of baggage.

Reels

When mahseer fishing it must be remembered that the strain on reels is very great. They should, therefore, be of the best quality and free from any obstruction liable to check a running fish. Constant inspection is essential to ensure that the screws are tight and that the mechanism is well oiled and greased.

There are two obvious factors which affect the size of the reel used:

- (a) balance of the outfit,
- (b) length of line.

Some famous writers have told us that 100 to 150 yds. of line should be sufficient. This may be adequate for the smaller fish, but what angler can confidently assume that he will not engage with a heavy specimen? It is most exasperating to see an expensive line run out to the full length of the backing and broken.

I have discussed this point with many mahseer anglers; while a number express individual preferences, the consensus of opinion (for heavy fishing) seems to be in favour of the Silex reel from $3\frac{1}{2}$ to $4\frac{1}{2}$ ins. Again a personal preference creeps in. When expecting to meet heavy mahseer, I like to use a Silex capable of holding from 250 to 300 yds. of line and backing, the 300 yds. being the safer, provided that it balances with the rod used.

For steel rods with multiplier reels, for light fishing I would recommend the Elarex, Supreme and Summit reels. For heavy fishing the Norka, for it has a capacity of 250 yds., while for threadline fishing the No. 3 Altex. A number of new post-war reels have now come on the market (the Penn, for example, with its air brakes), but, as the average angler cannot yet purchase them, comment must be postponed.

Some form of finger-braking is desirable, other than the bare hand. The Silex type of reel carries a device for this purpose. For multipliers a finger-stall is recommended. Some anglers prefer a leather flap attached to the reel. If, however, there is the least danger of this flap fouling a running line, it should be avoided, as it will entail the loss of a good fish.

Lines

The length of line to be used has already been commented on (under reels). The type of line to be used is, again, a matter for individual preference. Dressed, waterproof lines are not a success in the East for they are liable to become tacky in tropical conditions, no matter how carefully they are stored.* For this reason I have discarded them for the braided silk lines such as the "Nonpareil" and "Lignum Vitae". The breaking strain will, of course, depend on the size of fish expected, remembering that the lighter the breaking strain, the greater will be the facilities for casting. For very light baits, a lot of sport can be enjoyed with the 6-lb. B.S. Personally, I have used a length of say 25 yds. of the 6-lb. B.S. spliced on to a 12-lb. B.S. line. If the 6-lb. proves too light, it can easily be removed. At the other end of the scale, for heavy fishing, a breaking strain of from 25 to 30 lbs. is recommended. A backing of hemp or flax line is the most popular.

For light work, especially threadline, the nylon braided line is well worthy of a trial, for it is nearly waterproof and has exceptional casting powers, to mention only two of its advantages.

Loss of tackle does happen through many unforeseen causes. Opportunities for mahseer fishing often occur far away from civilisation so the need for carrying ample spares of *everything* is of vital importance—not forgetting the line. Many a good fishing holiday has been abruptly terminated by lack of forethought in this respect.

The break will, of course, take place at the weakest link in the "chain"—and this may be the line, consequently frequent breaking-strain tests should be applied throughout. If spares are plentiful then the strength of the trace may be the same as that of the line; but when they are limited (as so often happens), it is obvious that it is wiser to arrange that the heaviest breaking-strain should be at the backing end and the lightest at the bait connections.

Spoons

Spinning with the spoon is the most popular form of mahseer fishing. Spoons vary in size from the minute fly-spoon to those of four inches, and even larger; in shape, from the long narrow type to the broad hog-backed; in material, from mother-of-pearl to silver, gold, brass, copper and bi-coloured; some are plain, others are scale-marked.

It is as well to keep an open mind on this controversial subject for each type has its advocates and kills fish. It pays to study local conditions and to be not too proud to take advice from resident anglers. Factors controlling the choice are affected by the water; fast or slow, shallow or deep, clear or thick. A small fish will take a large spoon and vice versa. As in all methods of fishing, it is desirable to use the type of lure which inspires the most confidence.

* Recently, Mr L. R. Hardy kindly advised me to send him two of my lines which had seen much tropical service. Although not overstrained, they were hopelessly 'tacky' and unusable. After undergoing the new 'Harcourt' process, they were returned to me like new lines. I have tested them in England with excellent results. It is claimed that they will not revert to tackiness in tropical climates.

Many spoons are lost while fishing; they are expensive to buy, but can be made up cheaply in the East by local craftsmen. The rigidity of the spoon is not of such importance as the strength of the mount which, of course, holds the fish.

As so often happens, after a fierce battle with a mahseer, on landing the fish the lure drops out of the mouth. The reason is that the leathery mouth does not offer a good hook-hold. Apart from keeping a steady pressure on the fish during play, it must be remembered that the mahseer will try to lever itself off the hook if given a chance to do so, therefore the choice of mount should ensure that opportunity for such leverage is reduced to a minimum.

Much has been written on the subject since Thomas's classic *A Rod in India* (written in the 'seventies) followed by *An Angler in India, or The Mighty Mahseer* by "Skene dhu" (written some thirty years later). At the time of writing, a serial is appearing in the *Bombay Natural History Society's Journal* called "Circumventing the Mahseer" by Major A. St J. Macdonald. When this is published in book form it will prove an encyclopdia of knowledge for the mahseer angler, for Major Macdonald is a skilled angler who has devoted a lifetime to the sport, and his views are entitled to the respect they deserve, and I make grateful acknowledgment both to him and to the B.N.H.S. for permitting me to mention them.

Major Macdonald advocates his Myitkyina spoon for getting down deep and thus enhancing the chances of hooking a fish. Narrow, deeply scaled and 4 ins. long, it is attached to the trace by a pear-shaped link swivel with a Hardy locking-collar and a treble high up, Major Macdonald states: "This is the secret of hooking most fish." The flying mount of galvanised wire is also threaded on to the pear-shaped link and he adds: "The correct length of a flying mount is half the loop and treble clear from the bottom of the spoon."

As regards hooks he advises: "Avoid using very large trebles as they are quite unnecessary. I would call No. 1 in trebles large enough for any mount in the tail hook, and size 4, for the top hook. Use only the best, either Hardy's oval wire or Verona's treble brazed; these sizes are for spoons of 3 to 4 ins. long."

It is not thought that many anglers will quibble at this excellent advice, which gives a sound basis for experiment. If I were pressed for a personal recommendation, I would endorse this view, and also mention that I have found a Farlow 2½-in. pear-shaped spoon of copper and silver a "killer" in varied waters.

Some writers and anglers have advocated a large single hook at the base of the spoon, stressing its greater hooking power and immunity from crushing. There is a good deal to be said for this contention, but it is thought that any type of hook which comes in contact with the mighty teeth in the throat of a mahseer is liable to be damaged.

Plugs

After much trial, I have come to the conclusion that plug baits are among the most killing for mahseer. They have certain advantages over other forms of bait:

- (a) They more closely resemble a wounded fish.
- (b) They do not spin, thus eliminating kink, and so wear, on the line and trace.
- (c) They can be floated over dangerous snags and rocks.

They may be purchased in a variety of sizes and colour both jointed and unjointed to suit individual tastes; the most successful types being the Pflueger "Pal-o-Mine" and the Heddon "River Runt Spooks." For heavy mahseer, the 4½-in. "Pal-o-Mine"



GOONCH (*BAGARIUS BAGARIUS*)

NOTE—Basking below falls with back out of water, a favourite habit



gave the best results. The normal large tinned hooks (as normally sold) are quite useless for mahseer, and I have had some correspondence with the makers (U.S.A.) who tell me this large type of hook is popular in the West. They do, however, supply an extra strong variety of hook or they can be replaced with strong, brazed trebles (suggested sizes Nos. 4 to 6). Care must be taken that this replacement of hooks does not upset the balance of the plug, so they should first be tested on any suitable stretch of water before serious operations commence. They are now so well known that they do not require any detailed description of handling.

As a commentary, I recollect reaching rather an inaccessible canal head-works, too late for serious fishing as the sluice-gates had been opened. I found that an angler, a comparative novice, had just succeeded in killing a 70 lb. mahseer on a 4½-in. jointed "Pal-o-Mine", when the mahseer, on that day, had showed little interest in spoon baits. This fish was a record for that area. When supplies were short, I have had a lot of fun making up my own plug baits. To those interested in such experiment I would confidently recommend that excellent book *Tackle Making for Anglers* by L. Vernon Bates.

Casts and Traces

Although gut, gut-substitute and nylon are suitable for light fishing, a wire trace is desirable for heavy mahseer. Killin, stainless steel and phosphor-bronze are all popular—the main danger is kinking, and this, to some extent, can be lessened by the use of really effective swivels.* A popular length of cast is 6 ft. I am inclined to think this is too long; provided the fish is not frightened by glint, etc., the shorter the cast the better.

For casting with threadline and multipliers, the cast must necessarily be short. With light tackle I have found that one foot and even nine inches of wire has not scared shy fish, especially when Alasticum is used. I have experimented a lot with this type of wire and, given reasonable care and inspection, have found it to be most satisfactory. Even when ledgering for that wariest of fish, the British carp, I have found it will give better results than gut. My method has been to mount the hook direct on to the Alasticum. If this trace is then joined by means of a swivel to a black Nonpareil line, the results are good.

My personal preference has been to use a cast (a) of Alasticum, and (b) of stainless steel with a breaking strain suitable for the various types of fishing.

Swivels, Links and Split Rings

After many disasters resulting in the loss of good fish, and after benefiting by the experience of other anglers, I have found the pear-shaped link-swivel, especially with the Hardy locking-collar, to be the most satisfactory. I discarded split rings years ago as they so often let me down. In my very early days, when fishing a well-known pool, I placed myself in the hands of the experienced native gillies who must have been "in at the death" of thousands of mahseer, and big ones too. With silent disgust, after removing all my split rings, they replaced them with small circles of copper wire, bound round the circumference by more copper wire; on these improvised rings I never had a further break.

* I have tested out Messrs Hardy Bros. ball-bearing swivels for one season and have found that they were the best anti-kink devices that I have yet tried.

Weights

Some form of weight is often essential to get the bait down to where you require it to be. It should be remembered that the weight must not impose too heavy a strain on your rod and tackle. Better results are usually obtained by fishing close to the bottom. River bottoms are frequently rocky and the weights become jammed, often resulting in the loss of much valuable tackle. As the angler will sometimes fish from a boat, if the water is not too deep, a long pole with an improvised tackle release will be found to be of considerable help.

The practice of attaching the weight (say to the top swivel of the trace), by some material of a lesser breaking strain than the trace and line, will be found to save much bad language. Further, suitable small stones can sometimes be improvised for use instead of the various types of lead weights; a rough and ready substitute, it is true, but quite effective, especially when the angler is fishing in the "back of beyond"—as he often is—and his stock of spares is diminishing. The size of the weight to be used must, of course, depend on the type of water to be fished and the strength of the current.

Live and Dead Bait

Anybody who, at certain seasons of the year, has watched the masses of small fish moving upstream and has observed the swirls and splashes of the large, predatory fish which attack them, will quickly seize the opportunity for using a natural bait. These small fish are usually known as *chilwa* (*Chela argentea*). This is often an erroneous nomenclature for they are frequently the fry of other fish. In any case, they offer a good bait when, as the mahseer angler would say, "the *chilwa* are running."

Dead bait is also used most effectively both for casting and trolling. They are usually mounted on some form of spinner and each angler has his individual preference to suit his method of mounting. It would be beyond the scope of this article to enlarge on the details.

These dead baits vary so much in size, that a lot of time is often wasted in getting the mount to fit the fish. This loss of valuable time can often be obviated by a little prevision, and spare-time work in the off-season. All that is necessary is to prepare a good stock of trebles, neatly mounted on wire of varying lengths and finished off with a dab of solder. If a small ring of wire is left at the head of the wire, it can be easily slipped on to the loop of the swivel (especially the detachable pear-shaped swivel already described) at will, so that a suitable fit is always at hand.

The same system holds good for the flying mounts to fit the varying sizes and shapes of spoons. If transported fixed to the spoons, they frequently tangle up and are a nuisance. If these flying mounts are carried detached (well-oiled) in suitable tin boxes, the angler will never cease to bless himself for having spent a few casual hours in observing this old and practical expedient. The spoons themselves are far easier carried unmounted than mounted, especially when the journey entails long marches on coolie or pack transport.

Spinners

A good stock of spinners will be found to be an advantage—from the small devons, for light fishing, to the larger phantoms and wag-tails. A reluctant taker can sometimes be lured to destruction by a change of bait, from the rapidly revolving spinner to the

slow wobbling lure; the change of rhythm may, or may not, account for this fact. "Vary the diet" is a good motto to follow.

Hooks

Hooks have already been dealt with under the various types of spoons, plugs, etc., and certain sizes indicated. As a general principle they should be very strong and not too large. There is a general tendency to use too large a hook, which has been found to be unnecessary for light work (such as threadline); small, sharp trebles, which will ensure penetration when actuated by a light rod, will be found to give the best results. For paste fishing, my preference leans to the large single hook in order to avoid crushing by the teeth in the throat, for this type of bait is often gorged. If the paste is put on pear-shaped and smoothed away slightly over the point of the hook, it ensures easier penetration on the strike.

Other Baits

When possible, ground-baiting, with the type of bait to be used, is important. As the best fishing is usually to be found in clear water, concealment, when mahseer fishing, is every bit as vital as when angling for trout and salmon; this is a point which is often overlooked. Mahseer are, also, particularly sensitive to vibration.

Barbus tor will take a very wide range of baits which include flies, worms, frog, offal, prawns, mulberries, small figs and even flower petals. Space does not permit the inclusion of the various types of mounts which are more or less conventional, but which leave room for much intelligent improvisation; consequently, comment seems only necessary on the three methods below:

- (a) *Flies*.—The keen fly expert will find many opportunities for practising his art, especially in lake districts. Many of the standard patterns will kill fish, but local advice will prove helpful. Broadly speaking, black, yellow-brown and white flies will usually be the most effective.
- (b) *Floats*.—Sometimes it will be found that an inaccessible mahseer may be killed by some such bait as a grasshopper, locust or even frog when floated over the lies which are, perhaps, out of casting distance. This difficulty may be overcome by the employment of some sort of float, from the circular cork variety to the "controller," as advocated by Mr Alexander Wanless in his *Light Line Fly Fishing for Salmon*.

By the agency of a light casting rod, used with threadline or multiplier, the range of casting is increased thus allowing the bait to be floated over areas otherwise inaccessible. The float, or controller, can be checked when necessary, as it moves down with the current, and can, by adjustment, be manipulated so as to afford a surface or under-surface presentation. The heavier the controller or float, the longer will be the cast. The difficulty of landing a fish is overcome (Mr Wanless advocates) by the introduction of a running knot immediately below the float, which is automatically released by the pull of the fish. The controller can then run down the cast or trace to a distance shorter than the rod used, thus making the landing of the fish a possibility.

- (c) *Gram*.—During frequent tours of duty in the Central Provinces of India, I adopted the local custom of using gram for light fishing. It has proved to be a very popular and effective bait, especially in the Narbada and its tributaries, which has

accounted for many a good mahseer up to, say, 12 lbs.* Gram is a little circular pellet, somewhat larger than a hemp seed. After careful ground-baiting to attract the fish, the gram is partially cooked and, after boring, threaded on to the hook; this means that the hook must be whipped on to the gut and the little pellets bored, and pushed down from the top to the hook. They are very friable, needing constant replacement and the piercing is a tedious business.

Thomas in his *Rod in India* recommends piercing with a red-hot needle. This will be found to be a long (and sometimes painful) business. I often blessed a correspondent (his name is, unfortunately, untraceable) who suggested the simple remedy of bending out an ordinary paper-fastener into a T-shape, and grinding the point into a minute chisel-end. This little implement bores through the pellet quite easily. A number of hooks-to-gut ready baited should be carried as spares.

Thomas's suggestion of artificial wooden beads, painted to represent gram, is a reasonable one, but it was found to be not so effective as the natural gram.

Preparation of Paste which Sticks to the Hook

The normal paste is made from the native *ata* (flour). The present, and previous, record mahseer were both caught on *ragi* paste which is popular in parts of Southern India. What is wanted is a type of paste which sticks well to the hook. That skilled angler, Major Macdonald, recommends that the dough should first be kneaded, then wrapped in fine cloth, boiled for a short time, adding any savoury personal preference to taste; after which it is kneaded again until it is "sticky and soft."

Pop-Corn

Good sport can often be enjoyed by baiting with pop-corn for small mahseer. The substance is easily obtained in any local bazaar. If a few handfuls are thrown in at likely spots in small rivers, it often is greedily attacked. Using a light trout rod; with a small hook attached to a fine cast, the bait is flicked lightly in the midst of disturbance caused by the rising fish. The bait comes off the hook very easily so some prefer to use a small white fly with yellow body; I have caught a number on such a fly, but the pop-corn fished as a fly is more effective.

VI—FISHING CONDITIONS

Mahseer have their marked preferences which, in some cases, differ from other species such as the *Salmonidae*. Good conditions would probably imply a fine cloudless day with an air temperature of, say, 80—90 degrees, the water temperature not too cold and the water itself *clear*. Some anglers will go so far as to say that it is useless to fish in coloured water; but it is thought that the weight of evidence is against them, although it is accepted that clear conditions give the best result.

Strong winds will put fish down although they do not mind a light breeze. The advent of an electric storm will *sometimes* stop fish taking, when all other conditions seem perfect. I have often wondered why this should be so, for mahseer *can* be caught even in a thunderstorm. After watching trout in the hatcheries creep under shelter, sicken, and sometimes die from reactions to electric storms, this behaviour of mahseer

* Thomas mentions a mahseer of 40 lbs. caught on gram bait (on single gut) by Major G. Nightingale. A single scale of this fish measured 2½ ins. diameter and was illustrated in the *Field* of 9th October, 1869.



GIANT SEA-PERCH (*PROMICROPS LANCEOLATUS*)
with DORAB (*CHIROCENTRUS DORAB*) in background

is not so surprising. Another possible cause, it is suggested, may be a protective instinct. Outsize hailstones occasionally fall at the time of these tropical storms and on more than one occasion I have seen large mahseer picked up from the water, stunned by the concussion.

Conditions Affecting Playing and Landing

The characteristic initial rush of the mahseer has already been mentioned and it is futile to attempt to check it. The fish should be followed, either by boat or along the bank, as quickly as possible. Subsequent runs are usually shorter. Pressure should be kept up on the fish and every subterfuge known to the angler should be employed to keep his quarry *moving*, and so exhaust itself.

The time required to kill a mahseer varies considerably. Major Macdonald in his *Circumventing the Mahseer* states:

“I estimate that with reasonably light tackle (that used for trout or salmon), the mahseer gives fight at approximately 2 to 3 minutes per pound in weight . . . I have killed a 75-pounder in 40 minutes and it has taken me 1 hour 20 minutes to kill one of 23 lbs.”

My own experiences have been somewhat similar. I have been surprised how quickly a large fish has been killed on light tackle (steel rod) when a far smaller one has taken twice as long to land.

As in most types of angling, if a hooked mahseer can be hustled quickly out of the pool, it is well worth fishing on in the same locality. I have noticed that if the line or trace breaks during play, the other denizens of the pool very soon get to know about it, and the chances of further sport there are reduced to nil.

Small varieties of mahseer can, of course, be landed by any normal method but, owing to the size and thickness of the scales the use of a gaff for large mahseer is often asking for trouble. It can be done but it is preferable to try to beach them, and a suitable shelving bank or sand-spit should, if possible, be reconnoitred beforehand. Fortunately, in the East, the angler is usually accompanied by an attendant, many of whom show proficiency in landing a fish in this way, *provided it is quite “played out.”* As already mentioned, the mahseer is often found to be only lightly hooked, so the landing must be regarded as a critical stage in the battle.

VII—MONSTERS AND RECORD MAHSEER

Anglers have, perhaps, become rather sensitive to ridicule regarding their tales of “that lost fish” (which, of course, was the biggest) and so forbear to relate their experiences. I feel it is not a rash statement to maintain that there must be few mahseer anglers of experience who have not, at some stage in their career, been taken by a “submarine” which sailed majestically away to the uttermost limits of the backing, until a smash became inevitable. They will tell you that they never even caught a glimpse of their fish.

Evidence continues to accumulate of enormous fish seen in the depths, and sometimes hooked, estimated to be far in excess of the existing records. In the case of a hooked monster, it is usually lost by the inability of the angler to follow either by boat or along the bank. It so often happens that progress is barred either by dangerous rapids, by broken river banks, or perhaps rocky, precipitous gorges. Further, owing to difficulties of transport in inaccessible localities, suitable weighing devices are over-

looked. Improvisations have to be made, and in some cases the fish has to be cut up and weighed in sections perhaps hours after capture.

Such evidence is, of course, highly unsatisfactory, and those interested in the subject naturally wish to get down to authentic cases.

I am indebted to Mr J. de Wet Van Ingen of Mysore, for kindly sending me a photograph of his 120 lb. mahseer. This was claimed as a record in the *Bom. Nat. Hist. Soc. Journal* Vol. XLVI, and the following particulars were given:

Weight	120 lbs.
Length	66½ ins.
Girth	41½ ins.
Mouth diameter	10 ins.

Caught in the Cubbany River on 22nd March, 1946.

My old friend, that well-known sportsman, Lt.-Colonel R. W. Burton, wrote up the previous rod-and-line record in the *B.N.H.S. Journal* Vol. XLIII. This 119 lb. fish was caught by Lt.-Colonel J. S. Rivett-Carnac on 28th December, 1919, at Muduktoore on the Cauvery River some 44 miles from Mysore, the previous record at that time being 110 lbs.

Colonel Burton mentions the bait was *ragi* paste; the time 9 a.m. and it took only 30 minutes to land. The measurements of the fish were certified by Mr P. F. Bowring (Deputy Commissioner of Mysore) as under:

Weight	119 lbs.
Length	64 ins. (unknown whether measured from the end or the fork of the tail)
Girth	42 ins.

Colonel Burton comments: “. . . the usual formula $L + \frac{L}{4} \times G^{2*}$ divided by 1,000 makes the weight 141 lbs. The appearance of the fish and the very short time taken to kill it indicate that it was a female spent by spawning and much out of condition. Otherwise it might well have weighed another 15 lbs.; and, as it was cut in two for weighing, loss on that account may have been some pounds more. I have no doubt it would have weighed as much as 135 lbs. when in good condition.”

Colonel Burton also comments on the 110 lb. fish (this time one in good condition) caught by Mr A. E. Lobb on 22nd October, 1938, also in the Cubbany (Kubani) River. The exact measurements are not available but it is significant to note that this fish also was cut in two for weighing 6½ hours after capture. He quotes Mr Lobb as saying:

“I hooked the fish at 8.45 a.m. and it was gaffed at 12.40 p.m. It was not fighting all the time but sulked for perhaps two hours out of the four. The fish and I would take a trip round the pool and then have a rest; that is, I had a rest when the fish felt that way. Then a pull or two and we would start off again. Twice I was over the monster when she had her snout in the mud and the great tail waving about the surface. This was towards the last half hour or so. It was a great experience; but exhausting work as a tight line had to be maintained all the time.”

It is interesting to note that Mr P. F. Bowring *gaffed* this fish as well as the 119-pounder caught by Lt.-Colonel Rivett-Carnac.

* Where L = length and G = girth of the fish.

In a brief article which I contributed to *The Fisherman's Bedside Book* (compiled by "B.B.") I mentioned Lt.-Colonel Rivett-Carnac's fish which was identified as *Barbus (Tor) mussullah* (Sykes) and also made reference to that cousin of the mahseer *Barbus schejk* (Heckel) which is found in the Tigris and Euphrates.*

The Tigris accounted for two easily bigger than the Indian rod-and-line records, viz., Major H. L. Colan's 125-pounder which he killed (on *ata* paste) with a 14-ft. rod in 1½ hours; and Major F. B. Lane's 140-pounder which took a 2-in. spoon.

I took a photo of a Tigris specimen of 167 lbs., and arrived at Nassiriyah (Euphrates) a few hours too late to see a 213-pounder intact as it had just been cut up and issued to the troops. In each case, these last two fish were caught on captured telephone wire attached to a very large hook (made by the armourer) enveloped in an enormous lump of paste.

Although not of the same variety as their Indian cousins, they seem worthy of mention owing to their great size. It would certainly not surprise me if one day we hear of an Indian mahseer being landed which will top the 200 lb. weight. But the angler will be a lucky man, for every element of luck must be in his favour, with ideal facilities to follow his fish. Perhaps I am rash in forecasting a mere male as a record breaker. As in the case of noted salmon, ladies have, on several occasions, hooked and landed a record fish. Anyhow, good luck to him—or her!

* *Schejk* or *scheijk* may be a German transliteration of sheikh. Dr Hora is quoted as saying (*B.N.H.S. Journal*, Vol. XLVI): '*Barbus schejk* (Heckel) is a large carp inhabiting the rivers of Mesopotamia. It has all along been confused with some closely allied forms such as *Barbus xanthopterus* etc. It is not a *Tor* type of fish but a *Puntius* in virtue of its interrupted labial groove. The photographs appearing in *B.N.H.S. Journal* (Vol. XXVI) are not really of *Barbus schejk* but of *Barbus esocinus* (Heckel).'

THE INTERNATIONAL GAME FISH ASSOCIATION

The International Game Fish Association, formed in 1939, acts as a control body for the sport of marine angling throughout the world and also keeps the marine angling rod and reel records for the world.

The Association is housed by the American Museum of Natural History in New York.

There is no individual membership in this Association, but to it belong 114 of the world's outstanding angling clubs and 10 scientific institutions particularly interested in the study of marine game fish.

On its International Committee are representatives for the following countries or sections: AFRICA: Gold Coast; Kenya, Tanganyika, Uganda; Nigeria; Cape Province; Natal and Zululand; AUSTRALIA; BAHAMA ISLANDS: Bimini; Cat Cay; Central and Western Bahamas; Walker Cay; BELGIUM; BERMUDA; BRITISH HONDURAS; BRITISH ISLES; CANADA: Eastern; Western; CANAL ZONE; COSTA RICA; CUBA; FIJI ISLANDS; FRANCE; HAWAIIAN ISLANDS; ITALY; JAMAICA; MALAYA; MARIANAS ISLANDS; MEXICO: Northern; Southern; NETHERLANDS WEST INDIES; NEW ZEALAND; NEWFOUNDLAND; PAPUA; PHILIPPINE ISLANDS; SOUTH AMERICA: Argentina; Brazil; Chile; Colombia; Peru; TAHITI; TOBAGO and TRINIDAD; UNITED STATES; WINDWARD ISLANDS.

The officers of the Association are: *President*, Michael Lerner; *President Emeritus*, William King Gregory; *Honorary Vice-President*, Clive Firth; *First Vice-President*, Philip Wylie; *Vice-Presidents*, B. Davis Crowninshield, Van Campen Heilner, Ernest Hemingway; *Secretary*, Francesca LaMonte.

No officer of the Association or member of its Executive Committee may hold a world record.

The Association requires claimants for records to use its affidavit form, on the back of which are printed its rules. These are procurable through any of its clubs, or if the angler is not a member of any club, the angler may get an affidavit from the headquarters of the Association. Up to a very recent date, records have been based on the thread class of the line used. They are now in the process of transition to poundage classes of tensile strength of the line used. Other divisions of records are being formed for various kinds of salt water casting.

The Association acts as a clearing house for information between anglers and scientific institutions interested in the study of fish, a combination which has proved to be very profitable to both. Its aims are: to encourage the study of game fish for the sake of whatever pleasure, information, or benefit it may provide; to keep the sport of game fishing ethical, and to make its rules acceptable to the majority of anglers; to encourage this sport both as a recreation and as a potential source of scientific data, and to place such data at the disposal of as many human beings as possible; to keep an attested and up to date chart of world record catches. The record catches are printed every spring. During each year there are many changes in these records. The latest records will appear when the next printing is issued. As of 15 April, 1948, they are:

WORLD RECORD MARINE GAME FISH

INTERNATIONAL GAME FISH ASSOCIATION
American Museum of Natural History
New York 24, N.Y., U.S.A.

ALL-TACKLE RECORDS

Fish	Scientific Name	Weight	Length	Girth	Place	Date	Angler	Line
ALBACORE	<i>Germo alalunga</i>	66 lbs. 4 oz.			Santa Catalina, Calif.	1912	F. Kelly	9
AMBERJACK	<i>Seriola lalandi</i>	106 lbs.	5' 8½"	37"	Passagrille, Fla.	21 March, 1937	H. M. Harker	24
BARRACUDA (Great)	<i>Sphyræna barracuda</i>	103¼ lbs.	5½'	31¼"	Bahama Islands	1932	C. E. Benet	
BASS (Calif. Black Sea)	<i>Stereolepis gigas</i>	515 lbs.			Santa Catalina, Calif.	1916	Wallace Beery	
BASS (Calif. White Sea)	<i>Cynoscion nobilis</i>	74 lbs. 4 oz.	6' 4"	30"	Playa del Rey, Calif.	8 March, 1941	W. M. Hartness	9
BASS (Channel)	<i>Sciaenops ocellatus</i>	75½ lbs.	64½"	41"	Cape Hateras, N.C.	29 Nov., 1941	B. R. Ballance	15
BASS (Sea)	<i>Centropristes striatus</i>	8 lbs. 2 oz.			Banks off New York		P. Volkman	
BASS (Striped)	<i>Roccos saxatilis</i>	73 lbs.	60"	30½"	Vineyard Sound, Mass.	17 Aug., 1913	C. B. Church	
BLACKFISH (or Tautog)	<i>Tautoga onitis</i>	21 lbs. 2 oz.	30"	21½"	Sheepshead Bay, N.Y.	30 Nov., 1937	A. von Kleist	
BLUEFISH	<i>Pomatomus saltatrix</i>							
BONEFISH	<i>Albula vulpes</i>	13¾ lbs.	31"	17"	Bimini, Bahama Isls.	9 March, 1919	B. F. Peek	9
CERO (or Florida Kingfish)	<i>Scomberomorus cavalla</i>	73¾ lbs.	62"	32"	Bimini, Bahama Isls.	Feb., 1935	L. B. Harrison	
COBIA	<i>Rachycentron canadus</i>	102 lbs.	70"	34"	Cape Charles, Virginia	3 July, 1938	J. E. Stansbury	36
DOLPHIN	<i>Coryphaena hippurus</i>	67½ lbs.	68½"	37½"	Waianae, Oahu, T.H.	19 Aug. 1940	Fred McNamarra	36
DRUM (Black)	<i>Pogonias cromis</i>	90 lbs.			Surf City, N.J.	21 June, 1925	Jack Inman	
FLOUNDER (Summer)	<i>Paralichthys dentatus</i>	19 lbs.			Banks off New York	c. 1895	Fred Foster	
JEWFISH	<i>Promicrops guttatus</i>	551 lbs.	8' 4"		Galveston Bay, Texas	June, 1937	G. Pangarakis	24
MARLIN (Blue)	<i>Makaira nigricrans</i>	737 lbs.	13' 1"	72"	Bimini, Bahama Isls.	16 July, 1941	J. V. Martin	39
MARLIN (Pacific Black)	<i>Makaira nigricans marlina</i>	976 lbs.	12' 8"	6' 2"	Bay of Isls., N.Z.	25 Feb., 1926	Laurie Mitchell	36

GAME FISH OF THE WORLD

ALL-TACKLE RECORDS—continued

Fish	Scientific Name	Weight	Length	Girth	Place	Date	Angler	Line
MARLIN (Silver)	<i>Makaira nigricans tahitiensis</i>	618 lbs.	11' 6"	5' 2"	Tahiti	March, 1930	Zane Grey	39
MARLIN (Striped)	<i>Makaira mitsukurii</i>	692 lbs.	13' 5"		Balboa, Calif.	18 Aug., 1931	A. Hamann	24
MARLIN (White)	<i>Makaira albida</i>	161 lbs.	8' 8"	33"	Miami, Florida	20 March, 1938	L. F. Hooper	24
PERMIT	<i>Trachinotus goodei</i>	Tie 39 lbs. 8 oz.	{ 41" 39½"	32" 29½"	Bimini, B.W.I. Long Key, Fla.	4 March, 1947 22 Sept., 1946	E. T. Ragsdale H. P. Clark	9 15
SAILFISH (Atlantic)	<i>Istiophorus americanus</i>	106 lbs.			Miami Beach, Fla.	1929	Wm. Bonnell	24
SAILFISH (Pacific)	<i>Istiophorus greyi</i>	221 lbs.	10' 9"		Santa Cruz Is., Galapagos	12 Feb., 1947	C. W. Stewart	30
SAWFISH	<i>Pristis pectinatus</i>	736 lbs.	14' 7"		Galveston, Texas	4 Sept., 1938	G. Pangarakis	39
SHARK (Mako)	<i>Isuropsis mako</i>	1,000 lbs.	12'		Mayor Is., N. Zealand	14 March, 1943	B. D. H. Ross	39
SHARK (Man-Eater or White)	<i>Carcharodon carcharias</i>	1,919 lbs.	14' 8"	8' ½"	Kangaroo Is., Aus.	12 May, 1941	G. R. Cowell	54
SHARK (Porbeagle)	<i>Lamna nasus</i>	1,009 lbs.	10' 6"	6'	Egmont Key, Fla.	2 March, 1936	A. Hack	
SHARK (Thresher)	<i>Alopias vulpinus</i>	922 lbs.			Bay of Isls., N. Zealand	21 March, 1937	W. W. Dowding	
SHARK (Tiger)	<i>Galeocerdo tigrinus</i>	1,382 lbs.	13' 10"	7' 9"	Sidney Heads, Aus.	22 Feb., 1939	L. Bagnard	36
SNOOK (or Robalo)	<i>Centropomus undecimalis</i>	50½ lbs.	55"		Gatun Spillway, Canal Zone	2 Jan., 1944	J. W. Anderson	27
SWORDFISH	<i>Xiphias gladius</i>	860 lbs.	13' 9"	5' 10"	Tocopilla, Chile	28 Apr., 1940	W. E. S. Toker	39
TARPON	<i>Tarpon atlanticus</i>	247 lbs.	7' 5½"		Panuco River, Mexico	24 March, 1938	H. W. Sedgwick	39
TUNA (Allison)	<i>Neothunnus allisoni</i>	265 lbs.	73"	53"	Makua, T.H.	31 July, 1937	J. W. Harvey	24
TUNA (Bluefin)	<i>Thunnus thynnus</i>	927 lbs.	10' 3"	6' 8"	Ipswich Bay, Mass.	25 Aug., 1940	J. Vernaglia	54
TUNA (Dogtoothed)	<i>Gymnosarda nuda</i>	151 4/5 lbs.			Tahiti	15 Feb., 1936	S. Rabinovitch	24
WAHOO	<i>Acanthocybium solandri</i>	133½ lbs.	6' 11"	31"	Green Cay, Bahama Isls.	24 April, 1943	K. L. Ames, Jr.	21
WEAKFISH	<i>Cynoscion regalis</i>	17 lbs. 8 oz.	46"	19"	Mullica River, N.J.	30 Sept., 1944	A. Weisbecker, Jr.	15
WEAKFISH (Spotted)	<i>Cynoscion nebulosus</i>	14 lbs.	33½"	18"	Lake Worth, Fla.	9 Feb., 1946	R. N. Rose	9
YELLOWTAIL	<i>Seriola dorsalis</i>	88 lbs.	5' 4"	2' 7"	Bermagui, Australia	23 April, 1938	Clive Firth	12

THREE-THREAD RECORDS

Fish	Scientific Name	Weight	Length	Girth	Place	Date	Angler
ALBACORE	<i>Germo alalunga</i>	20 lbs.	32"	21"	Catalina, California	5 July, 1946	J. D. Locke
BARRACUDA (Great)	<i>Sphyraena barracuda</i>	21½ lbs.	4'	16½"	Bimini, B.W.I.	4 June, 1947	S. K. Farrington, Jr.
BASS (Striped)	<i>Roccus saxatilis</i>	28 lbs.			Montauk, New York	1938	S. K. Farrington, Jr.
DOLPHIN	<i>Coryphaena hippurus</i>	27 lbs.	51"	27"	Acapulco, Mexico	16 Dec., 1947	L. Ossi
SAILFISH (Atlantic)	<i>Istiophorus americanus</i>	61½ lbs.			Miami Beach, Fla.	1937	J. Dunham
SAILFISH (Pacific)	<i>Istiophorus greyi</i>	108 lbs.	9' 7"	2' 11"	Acapulco, Mexico	21 Nov., 1947	G. Beilharz
TARPON	<i>Tarpon atlanticus</i>	45 lbs.			Everglades, Fla.	21 June, 1937	J. Dunham

SIX-THREAD RECORDS

Fish	Scientific Name	Weight	Length	Girth	Place	Date	Angler
ALBACORE	<i>Germo alalunga</i>	55½ lbs.			Catalina, Calif.	1927	W. De Mille
AMBERJACK	<i>Seriola lalandi</i>	58 lbs. 8 oz.	53½"	32½"	Islamorada, Florida	2 Feb., 1941	W. Harborn
BARRACUDA (Great)	<i>Sphyraena barracuda</i>	58½ lbs.	5' 4½"	26"	Craig, Florida	11 May, 1946	Brooks L. Clark
BASS (Calif. Black Sea)	<i>Stereolepis gigas</i>	75½ lbs.	41"	38"	Huntington Beach, Calif.	27 June, 1942	H. E. Verhoef
BASS (Calif. White Sea)	<i>Cynoscion nobilis</i>	46½ lbs.			Catalina, Calif.	20 May, 1909	A. L. Beebe
BASS (Channel)	<i>Sciaenops ocellatus</i>	40½ lbs.	46"	25"	Titusville, Fla.	24 June, 1939	L. S. Caine
BASS (Striped)	<i>Roccus saxatilis</i>	57 lbs.	55½"	34½"	Narragansett, R.I.	26 July, 1944	J. Sylvester
COBIA	<i>Rachycentron canadus</i>	42 lbs. 8 oz.	51"	24½"	Chesapeake Bay, Va.	13 July, 1946	Earl C. Bigger
DOLPHIN	<i>Coryphaena hippurus</i>	50 lbs.	65"	33½"	Acapulco, Mexico	24 Oct., 1945	C. Bowen
MARLIN (Pacific Black)	<i>Makaira nigricans marlina</i>	135 lbs.	87"	35.5"	Acapulco, Mexico	29 Oct., 1945	C. Bowen
MARLIN (Striped)	<i>Makaira mitsukurii</i>	Tie { 209 lbs.	9' 7½"	40"	Balboa, Calif. Guaymas, Mexico	18 May, Aug. 10, 1941	B. Pigg J. Mikell
MARLIN (White)	<i>Makaira albida</i>	92 lbs. 8 oz.			Bimini, Bahama Isls.	April, 1936	J. Dunham
PERMIT	<i>Trachinotus goodii</i>	35 lbs. 4 oz.	41½"	30½"	Content Key, Florida	15 April, 1941	L. J. Stranahan

GAME FISH OF THE WORLD

SIX-THREAD RECORDS—*continued*

<i>Fish</i>	<i>Scientific Name</i>	<i>Weight</i>	<i>Length</i>	<i>Girth</i>	<i>Place</i>	<i>Date</i>	<i>Angler</i>
SAILFISH (Atlantic)	<i>Istiophorus americanus</i>	69½ lbs.	8' 3½"		Palm Beach, Florida	30 Jan., 1932	H. Major
SAILFISH (Pacific)	<i>Istiophorus greyi</i>	132 lbs.	8' 6½"	34½"	Guaymas, Mexico	19 May, 1941	B. Pigg
SNOOK (or Robalo)	<i>Centropomus undecimalis</i>	36 lbs. 14 oz.			St. Lucie Inlet, Fla.	2 July, 1939	G. Van Wickle
TARPON	<i>Tarpon atlanticus</i>	151 lbs.	5' 11"	39½"	Islamorada, Florida	1 June, 1943	J. P. Norfleet
TUNA (Bluefin)	<i>Thunnus thynnus</i>	62 lbs.			Montauk, N.Y.	14 Aug., 1930	S. K. Farrington, Jr.
WAHOO	<i>Acanthocybium solandri</i>	67 lbs. 8 oz.			Miami Beach, Florida	11 Dec., 1935	J. Dunham
WEAKFISH (Spotted)	<i>Cynoscion nebulosus</i>	11 lbs. 12 oz.	33"	19"	Sebastian Inlet, Fla.	7 June, 1931	L. S. Caine
YELLOWTAIL	<i>Seriola dorsalis</i>	57½ lbs.			Catalina, Calif.	1915	E. G. Hauser

NINE-THREAD RECORDS

<i>Fish</i>	<i>Scientific Name</i>	<i>Weight</i>	<i>Length</i>	<i>Girth</i>	<i>Place</i>	<i>Date</i>	<i>Angler</i>	
ALBACORE	<i>Germo alalunga</i>	See All-Tackle Record						
AMBERJACK	<i>Seriola lalandi</i>	71 lbs.	59"	34"	Alligator Reef, Fla.	26 Jan., 1947	C. J. Bryson	
BARRACUDA (Great)	<i>Sphyræna barracuda</i>	44 lbs.	52"	25½"	Fowey Light, Fla.	10 June, 1945	G. Van Wickle	
BASS (Calif. Black Sea)	<i>Stereolepis gigas</i>	306 lbs.			Catalina, Calif.	4 Sept., 1935	S. Bagby	
BASS (Calif. White Sea)	<i>Cynoscion nobilis</i>	See All-Tackle Record						
BASS (Striped)	<i>Roccus saxatilis</i>	34 lbs.	48½"	24½"	Narragansett Pier, R.I.	19 July, 1941	J. Churchill, Jr.	
BONEFISH	<i>Albula vulpes</i>	See All-Tackle Record						
CERO (or Florida Kingfish)	<i>Scomberomorus cavalla</i>	44½ lbs.	58"	23½"	Miami Beach, Fla.	28 Jan., 1948	S. Fern	
DOLPHIN	<i>Coryphaena hippurus</i>	58 lbs.			Havana, Cuba	10 May, 1941	Mrs. J. Simpson, Jr.	
MARLIN (Blue)	<i>Makaira nigricans ampla</i>	156 lbs.	8' 8"	39"	Miami Beach, Fla.	10 Dec., 1947	S. D. Mills	
MARLIN (Pacific Black)	<i>Makaira nigricans marlina</i>	258 lbs.	9'	4' 2"	San Jose Is., Canal Zone	30 Aug., 1947	J. D. Greenway	
MARLIN (Striped)	<i>Makaira mitsukurii</i>	425 lbs.	11' 7"	4' 3½"	Tocopilla, Chile	8 May, 1941	S. K. Farrington, Jr.	



PUTTIR MAHSEER (*BARRIS 'TOR'* PITTORA)

NINE-THREAD RECORDS—*continued*

<i>Fish</i>	<i>Scientific Name</i>	<i>Weight</i>	<i>Length</i>	<i>Girth</i>	<i>Place</i>	<i>Date</i>	<i>Angler</i>	
MARLIN (White)	<i>Makaira albida</i>	114 lbs.	8'	34"	Ocean City, Md.	26 July, 1940	A. M. Ferguson	
PERMIT	<i>Trachinotus goodei</i>	See All-Tackle Record						
SAILFISH (Atlantic)	<i>Istiophorus americanus</i>	90½ lbs.	8' 4"	31"	Norris Cut, Fla.	1939	D. McCarthy	
SAILFISH (Pacific)	<i>Istiophorus greyi</i>	141 lbs.	9' 10"	35"	Perlas Is., Panama	17 June, 1939	S. K. Farrington, Jr.	
SHARK (Mako)	<i>Isuropis mako</i>	79½ lbs.			Miami Beach, Fla.	1940	S. W. Gooderham	
SWORDFISH	<i>Xiphias gladius</i>	365 lbs.			Santa Catalina, Calif.	1928	J. W. Jump	
TARPON	<i>Tarpon atlanticus</i>	154 lbs.	6' 7½"	38½"	Panuco River, Mexico	19 June, 1945	J. F. Cicero	
TUNA (Allison)	<i>Neothunnus allisoni</i>	18 lbs.	31½"	19½"	Bermuda Banks	31 Oct., 1946	A. B. Payne	
TUNA (Bluefin)	<i>Thunnus thynnus</i>	145½ lbs.			Catalina, Calif.	1919	J. W. Jump	
WAHOO	<i>Acanthocybium solandri</i>	57 lbs. 4 oz.	62"		Lamon Bay, P.I.	20 Nov., 1939	J. L. Myers	
WEAKFISH (Spotted)	<i>Cynoscion nebulosus</i>	See All-Tackle Record						
YELLOWTAIL	<i>Seriola dorsalis</i>	60½ lbs.			Catalina, Calif.	16 July, 1908	W. W. Simpson	

FIFTEEN-THREAD RECORDS

<i>Fish</i>	<i>Scientific Name</i>	<i>Weight</i>	<i>Length</i>	<i>Girth</i>	<i>Place</i>	<i>Date</i>	<i>Angler</i>	
AMBERJACK	<i>Seriola lalandi</i>	74 lbs.	66"	36"	Government Inlet, Fla.	12 Jan., 1945	H. Stein	
BASS (Calif. White Sea)	<i>Cynoscion nobilis</i>	68½ lbs.	55"	30"	Coronado Is., Mexico	13 Sept., 1937	J. O. Bailey	
BASS (Channel)	<i>Sciaenops ocellatus</i>	See All-Tackle Record						
CERO (or Florida Kingfish)	<i>Scomberomorus cavalla</i>	44 lbs.	58"	23"	Miami Beach, Fla.	27 Jan., 1948	Mrs. H. Butts	
COBIA	<i>Rachycentron canadus</i>	87 lbs.			Cape Charles, Va.	26 July, 1946	H. J. Dohrman	
DOLPHIN	<i>Coryphaena hippurus</i>	61 lbs.	5'		Ft. Lauderdale, Fla.	19 May, 1935	J. W. Gore	
MARLIN (Blue)	<i>Makaira nigricans ampla</i>	117 lbs.	89"	32"	Havana, Cuba	8 June, 1946	Lee Samuels	
MARLIN (Pacific Black)	<i>Makaira nigricans marlina</i>	286 lbs.	8' 2"	4' 1½"	Guaymas, Mexico	30 May, 1947	N. H. Crumley	

GAME FISH OF THE WORLD

FIFTEEN-THREAD RECORDS—*continued.*

<i>Fish</i>	<i>Scientific Name</i>	<i>Weight</i>	<i>Length</i>	<i>Girth</i>	<i>Place</i>	<i>Date</i>	<i>Angler</i>	
MARLIN (Striped)	<i>Makaira mitsukurii</i>	402 lbs.	10' 9"	4' 4½"	Tocopilla, Chile	13 Oct., 1940	W. E. S. Toker	
MARLIN (White)	<i>Makaira albida</i>	144 lbs.	8' 6"	38½"	Ft. Lauderdale, Fla.	16 Feb., 1938	G. W. Walker	
PERMIT	<i>Trachinotus goodii</i>	See All-Tackle Record						
SHARK (Mako)	<i>Isuropsis mako</i>	236 lbs.	7' 10½"	3' 6½"	Broken Bay, N.S.W.	19 Nov., 1939	D. G. Maitland	
SHARK (Man- Eater or White)	<i>Carcharodon carcharias</i>	450 lbs.	9' 6"	4' 8"	Mudhole, N.J.	2 June, 1941	C. J. Jorgensen	
SNOOK (or Robalo)	<i>Centropomus undecimalis</i>	49½ lbs.			Marco, Fla.	13 June, 1926	L. S. Caine	
TARPON	<i>Tarpon atlanticus</i>	192 lbs. (12-thread)	85½"	42"	Lagos, Nigeria	1938	J. N. Zarpas	
WAHOO	<i>Acanthocybium solandri</i>	58 lbs. 12 oz.	5' 4½"	28"	Miami, Florida	14 May 1946	Miss Lou Warren	
WEAKFISH	<i>Cynoscion regalis</i>	See All-Tackle Record						
WEAKFISH (Spotted)	<i>Cynoscion nebulosus</i>	12 lbs. 9 oz.	32½"	17½"	St. Lucie Inlet, Fla.	30 Jan., 1936	B. McQuillen	
YELLOWTAIL	<i>Seriola dorsalis</i>	See All-Tackle Record						

TWENTY-FOUR-THREAD RECORDS

<i>Fish</i>	<i>Scientific Name</i>	<i>Weight</i>	<i>Length</i>	<i>Girth</i>	<i>Place</i>	<i>Date</i>	<i>Angler</i>	
AMBERJACK	<i>Seriola lalandi</i>	See All-Tackle Record						
CERO (or Florida Kingfish)	<i>Scomberomorus cavalla</i>	70 lbs. 8 oz.			Bimini, B.W.I.	5 March, 1947	R. C. B. Morton	
COBIA	<i>Rachycentrom canadus</i>	69 lbs.	4' 11"	30½"	Palm Beach, Fla.	27 March, 1945	Mrs. D. A. Newstead	
JEWFISH	<i>Promicrops guttatus</i>	See All-Tackle Record						
MARLIN (Blue)	<i>Makaira nigricans ampla</i>	730 lbs.		60½"	Cat Cay, Bahama Is.	6 June, 1939	Mrs. H. Sears	
MARLIN (Pacific Black)	<i>Makaira nigricans marlina</i>	588 lbs.	12' 5½"	63"	Santa Catalina, Calif.	13 Sept., 1936	U. C. Murcell	
MARLIN (Silver)	<i>Makaira nigricans tahitiensis</i>	165 lbs.	7' 6½"	3' 4½"	Acapulco, Mexico	14 Jan., 1947	Edouard Lippe	
MARLIN (Striped)	<i>Makaira mitsukurii</i>	See All-Tackle Record						

THE INTERNATIONAL GAME FISH ASSOCIATION

TWENTY-FOUR-THREAD RECORDS—continued

Fish	Scientific Name	Weight	Length	Girth	Place	Date	Angler
MARLIN (White)	<i>Makaira albida</i>	See All-Tackle Record					
SAILFISH (Atlantic)	<i>Istophorus americanus</i>	See All-Tackle Record					
SHARK (Mako)	<i>Isuropsis mako</i>	745 lbs.	9' 5"	6' 2½"	Shinnecock Inlet, N.Y.	8 Oct., 1946	Hans Hinrichs
SNOOK (or Robalo)	<i>Centropomus undecimalis</i>	31 lbs.	44½"	23½"	Panuco River, Mexico	23 Feb., 1946	S. J. Nader
SWORDFISH	<i>Xiphias gladius</i>	659 lbs.	13'	5' 2"	Tocopilla, Chile	12 June, 1941	Mrs. S. K. Farrington, Jr.
TARPON	<i>Tarpon atlanticus</i>	187 lbs.	7'	44½"	Boca Grande Pass, Fla.	24 Jan., 1943	Mrs. A. J. Drexel
TUNA (Allison)	<i>Neothunnus allisoni</i>	See All-Tackle Record					
TUNA (Bluefin)	<i>Thunnus thynnus</i>	880 lbs.	109"	81"	Wedgeport, N.S.	14 Sept., 1941	J. Carpenter
TUNA (Dogtoothed)	<i>Gymnosarda nuda</i>	See All-Tackle Record					
WAHOO	<i>Acanthocybium solandri</i>	See All-Tackle Record					

THIRTY-NINE-THREAD RECORDS

Fish	Scientific Name	Weight	Length	Girth	Place	Date	Angler
COBIA	<i>Rachycentron canadus</i>	See All-Tackle Record					
DOLPHIN	<i>Coryphaena hippurus</i>	See All-Tackle Record					
MARLIN (Blue)	<i>Makaira nigricans ampla</i>	See All-Tackle Record					
MARLIN (Pacific Black)	<i>Makaira nigricans marlina</i>	See All-Tackle Record					
MARLIN (Silver)	<i>Makaira nigricans tahitiensis</i>	See All-Tackle Record					
MARLIN (Striped)	<i>Makaira mitsukurii</i>	403 lbs.	10'	4' 4½"	Tocopilla, Chile	21 June, 1940	Mrs. Michael Lerner
MARLIN (White)	<i>Makaira albida</i>	152 lbs.	8' 3"	40"	Bimini, B.W.I.	14 March, 1936	Mrs. M. B. Stevens
SAILFISH (Pacific)	<i>Istophorus greyi</i>	See All-Tackle Record					
SAWFISH	<i>Pristis pectinatus</i>	See All-Tackle Record					

WOMEN'S WORLD RECORDS FOR MARINE GAME FISH—*continued*

<i>Fish</i>		<i>Weight</i>	<i>Length</i>	<i>Girth</i>	<i>Place</i>	<i>Date</i>	<i>Angler</i>	<i>Line</i>
BLUEFISH								
BONEFISH	All-Tackle	12 lbs. 6 oz.			Bimini, B.W.I.	2 Feb., 1946	Mrs. C. O. Hohn	9-thread
CERO	All-Tackle (15 Both)	44 lbs.	4' 10"	23"	Miami Beach, Fla.	27 Jan., 1948	Mrs. H. Butts	15-thread
COBIA	All-Tackle (24 Both)	69 lbs.	4' 11"	30½"	Palm Beach, Fla.	27 March, 1945	Mrs. D. A. Newstead	24-thread
DOLPHIN	All-Tackle (9 Both) 3-thread	58 lbs. 8½ lbs.			Havana, Cuba West Palm Beach, Fla.	10 May, 1941 8 Dec., 1947	Mrs. James Simpson, Jr. Mrs. Louis Marron	9-thread
DRUM (Black)								
FLOUNDER (Summer)								
JEWFISH								
MARLIN (Blue)	All-Tackle (24 Both)	730 lbs.		60½"	Cat Cay, B.W.I.	6 June, 1939	Mrs. Henry Sears	24-thread
MARLIN (Black)	All-Tackle	823 lbs.	12' 9½"	5' 10"	Cape Brett, N.Z.	6 Feb., 1932	Mrs. Eastham Guild	36-thread
MARLIN (Silver)								
MARLIN (Striped)	All-Tackle (39 Both) 6-thread 9-thread 24-thread	403 lbs. 169 lbs. 231 lbs. 402 lbs.	10' 8' 6½"	4' 4½" 3' 3½"	Tocopilla, Chile Catalina, Calif. La Jolla, Calif. Catalina, Calif.	21 June, 1940 27 Oct., 1947 2 Sept., 1940 1934	Mrs. Michael Lerner Margaret Lawrence Mrs. S. H. Minor, Jr. Mrs. C. W. Carson	39-thread
MARLIN (White)	All-Tackle (39 Both) 6-thread 15-thread 24-thread	152 lbs. 75 lbs. 62 lbs. 92 lbs.	8' 3" 6' 6" 7' 7" 8' ¼"	40" 26" 31" 30½"	Bimini, B.W.I. Bimini, B.W.I. Miami Beach, Fla. Montauk, N.Y.	14 March, 1936 30 May, 1946 5 April, 1947 9 Aug., 1946	Mrs. M. B. Stevens Mrs. Louis Marron Mrs. W. R. Lake Mrs. Kath- leen Sheedy	30-thread
PERMIT	All-Tackle	30½ lbs.	3' 3"	25"	Boca Grande, Fla.	27 June, 1946	Mrs. Milton Gordon	12-thread
SAILFISH (Atlantic)	All-Tackle 3-thread 9-thread	104½ lbs. 31½ lbs. 51 lbs. 8 oz.	7' 11" 7' ¼"	31"	Miami Beach, Fla. Palm Beach, Fla. Palm Beach, Fla.	22 March, 1939 6 Dec., 1947 6 Dec., 1947	Ruth Edmands Mrs. Louis Marron Mrs. Louis Marron	24-thread
SAILFISH (Pacific)	All-Tackle 6-thread 9-thread	165 lbs. 91 lbs. 128 lbs.			Cocos Is., Costa Rica Acapulco, Mexico San Jose Is., C.Z.	1931 21 Sept., 1945 30 Aug., 1947	Peggy Hardwick Mrs. Roy. B. Dean Mrs. Jane Knapp	

CLASSIFIED LIST OF FISH MENTIONED IN THIS BOOK

CLASS CHONDRICHTHYES

<i>Lamna nasus</i>	.	.	.	.	.	Porbeagle Shark
<i>Isuropsis mako</i>	.	.	.	.	.	Mako Shark
<i>Carcharodon carcharias</i>	.	.	.	.	.	Maneater or White Shark
<i>Alopias vulpinus</i>	.	.	.	.	.	Thresher Shark
<i>Carcharias taurus</i>	.	.	.	.	.	Sand Shark
<i>Carcharias arenarius</i>	.	.	.	.	.	Grey Nurse Shark
<i>Galeocerdo cuvier</i>	.	.	.	.	.	Tiger Shark
<i>Carcharinus ahenea</i>	.	.	.	.	.	Bronze Whaler Shark
<i>Carcharinus macrurus</i>	.	.	.	.	.	Black Whaler Shark
<i>Carcharinus melanopterus</i>	.	.	.	.	.	Blackfin Shark
<i>Sphyrna zygaena</i>	.	.	.	.	.	Hammerhead Shark
<i>Sphyrna tiburo</i>	.	.	.	.	.	Shovelnose Shark
<i>Raja spp.</i>	.	.	.	.	.	Skate
<i>Trygon spp.</i>	.	.	.	.	.	Sting-rays
<i>Potamotrygon sp.</i>	.	.	.	.	.	Raya

CLASS OSTEICHTHYES

SUB-CLASS PALAEOPTERYGHII

FAMILY ACIPENSERIDAE

<i>Acipenser spp.</i>	.	.	.	.	.	Sturgeon
<i>Polyodon spathula</i>	.	.	.	.	.	Paddlefish

SUB-CLASS NEOPTERYGHII

ORDER GINGLYMODI

FAMILY LEPISOSTEIDAE

<i>Lepisosteus spatula</i>	Alligator Gar
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ORDER ISOSPONDYLI

FAMILY ELOPIDAE

<i>Elops saurus</i>	Bonefish; Tenpounder; Springer
<i>Tarpon atlanticus</i>	.	.	.	.	.	Tarpon
<i>Megalops cyprinoides</i>	.	.	.	.	.	Ox-eyed Herring

FAMILY ALBULIDAE

Albula vulpes Ladyfish; Bone Fish

FAMILY CHANIDAE

Chanos chanos Sabalo; Milkfish

FAMILY HIODONTIDAE

Hiodon alosoides Goldeye; Mooneye

FAMILY SALMONIDAE

Salmo salar Atlantic Salmon
Salmo gairdneri Rainbow Trout; Steelhead; Kam-
 loops Trout
Salmo agwa-bonita Golden Trout
Salmo clarkii Cut-throat Trout
Salmo trutta v *fario* European Brown Trout
Salmo trutta v *trutta* European Sea Trout
Salmo trutta v *levenensis* Loch Leven Trout
Cristivomer namaycush Great Lake Trout
Salvelinus fontinalis Brook Trout; Quebec Red Trout;
 Squaretail; Speckled Trout
Salvelinus willoughbyi Windermere Char
Salvelinus malmo Dolly Varden
Salvelinus arcturus Arctic Char
Salvelinus alpinus Char
Oncorhynchus keta Dog Salmon
Oncorhynchus nerka Blueback Salmon
Oncorhynchus nerka kennedyi Little Redfish
Oncorhynchus tshawytscha King-, Spring-, Tyee, Chinook-, or
 Quinnet Salmon
Oncorhynchus kisutch Silver Salmon or Coho
Oncorhynchus gorbuscha Humpbacked Salmon
Thymallus thymallus Grayling
Coregonus clupeaformis Whitefish
Hucho hucho Huchen

FAMILY OSTEGLLOSSIDAE

Heterotis niloticus Bellie
Osteoglossum bicirrhosum Aruana
Scleropages leichhardti Barramundi
Arapaima gigas Pirarucu; Arapaima

ORDER OSTARIOPHYSI
SUB-ORDER CYPRINOIDEA

DIVISION CHARACIFORMES

<i>Brycon opalinus</i>	.	.	.	.	Matrinchao
<i>Brycon nattereri</i>	.	.	.	.	Pirapitinga
<i>Brycon orbignyanus</i>	.	.	.	.	Salmón criollo
<i>Hoplias malabaricus</i>	.	.	.	.	Dientudo; Trahira
<i>Salminus maxillosus</i>	.	.	.	.	Dorado or Dourado
<i>Salminus brevidens</i>	.	.	.	.	Dorado or Dourado
<i>Salminus affinis</i>	.	.	.	.	Dorado or Dourado
<i>Serrasalmus nattereri</i>	.	.	.	.	Piranha
<i>Colossoma bidens</i>	.	.	.	.	Tambaquy
<i>Colossoma mitrei</i>	.	.	.	.	Pacú or Pacú-Guassú
<i>Xiphostoma cuvieri</i>	.	.	.	.	Pirapacu
<i>Leporhinus obtusidens</i>	.	.	.	.	Bôga
<i>Hydrolycus scomberoides</i>	.	.	.	.	Pirá-andirá
<i>Rhaphiodon vulpinus</i>	.	.	.	.	Machete; Chafalote
<i>Distichodus antonii</i>	.	.	.	.	Mbutu
<i>Hydrocyon lineatus</i>	.	.	.	.	Tigerfish; Wagassa
<i>Hydrocyon forskali</i>	.	.	.	.	Ngassa
<i>Hydrocyon goliath</i>	.	.	.	.	Goliath

DIVISION GYMNOTIFORMES

<i>Electrophorus electricus</i>	Poraquê or Electric Eel
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DIVISION CYPRINIFORMES

<i>Engraulicypris stellae</i>	Lake Sardine
<i>Leuciscus leuciscus</i>	Dace
<i>Rutilus rutilus</i>	.	.	.	.	Roach
<i>Scardinius erythrophthalmus</i>	.	.	.	.	Rudd
<i>Squalius cephalus</i>	.	.	.	.	Chub or Chevin
<i>Abramis brama</i>	.	.	.	.	Bream
<i>Barbus andrewi</i>	.	.	.	.	Whitefish
<i>Barbus barbus</i>	.	.	.	.	Barbel
<i>Barbus radcliffei</i>	.	.	.	.	Nkuyu
<i>Barbus aeneus</i>	.	.	.	.	Orange River Yellowfish
<i>Barbus serra</i>	.	.	.	.	Freshwater Snook or Serra
<i>Barbus (Tor) tor</i>	.	.	.	.	Barbel or Mahseer
<i>Barbus (Tor) putitora</i>	.	.	.	.	Putitor Mahseer
<i>Barbus mariae</i>	.	.	.	.	Rhino Barb
<i>Labeo spp.</i>	.	.	.	.	Sandfish
<i>Notemigonus sp.</i>	.	.	.	.	Shiner
<i>Semotilus corporalis</i>	.	.	.	.	Fallfish
<i>Ptychocheilus oregonensis</i>	.	.	.	.	Squawfish
<i>Barilius bola</i>	.	.	.	.	Indian "Trout"

SUB-ORDER SILUROIDEA

<i>Ictalurus lacustris</i>	. . . . .	Channel Cat
<i>Silurus glanis</i>	. . . . .	Wels
<i>Ameiurus melas</i>	. . . . .	Black Bullhead
<i>Ameiurus nebulosus</i>	. . . . .	Brown Bullhead
<i>Ameiurus natalis</i>	. . . . .	Yellow Bullhead
<i>Noturus spp.</i>	. . . . .	Stone-cats
<i>Brachyplatystoma filamentosum</i>	. . . . .	Pirahyba
<i>Brachyplatystoma vaillanti</i>	. . . . .	Pira mutaba
<i>Paulicea lutkeni</i>	. . . . .	Jahu
<i>Pseudoplatystoma fasciatum</i>	. . . . .	Sorubim-Pirambicú
<i>Luciopimelodus pati</i>	. . . . .	Pati
<i>Zungaro zungaro</i>	. . . . .	Manguruyú
<i>Arius spp.</i>	. . . . .	Bagre
<i>Bagarius bagarius</i>	. . . . .	Goonch
<i>Auchenipterus nuchalis</i>	. . . . .	Mapará
<i>Doras costatus</i>	. . . . .	Bacú
<i>Loricaria sp.</i>	. . . . .	Acary

ORDER APODES

FAMILY ANGUILLIDAE—Eels

FAMILY MURAENIDAE—Moray Eels

ORDER HAPLOMI

FAMILY ESOCIDAE

<i>Esox lucius</i>	. . . . .	Pike; Great Northern Pike
<i>Esox vermiculatus</i>	. . . . .	Mud Pickerel
<i>Esox americanus</i>	. . . . .	Barred Pickerel
<i>Esox niger</i>	. . . . .	Chain Pickerel
<i>Esox masquinongy</i>	. . . . .	Muskellunge

ORDER SYNENTOGNATHI

FAMILY BELONIDAE—Garfish

FAMILY EXOCAETIDAE—Flying fish

ORDER ANACANTHINI

FAMILY GADIDAE

<i>Gadus callarias</i>	. . . . .	Cod
<i>Gadus merlangus</i>	. . . . .	Whiting
<i>Microgadus tomcod</i>	. . . . .	Tommycod
<i>Pollachius pollachius</i>	. . . . .	Pollack
<i>Pollachius virens</i>	. . . . .	Coalfish; Pollock
<i>Molva molva</i>	. . . . .	Ling

FAMILY MERLUCCIIDAE

Merluccius spp. Hake

ORDER ZEOMORPHI**FAMILY ZEIDAE**

Zeus faber John Dory

ORDER PERCOMORPHI

Morone labrax Bass
Morone americana White Perch
Morone interrupta Yellow Bass
Roccus saxatilis Striped Bass
Lepibema chrysops White Bass
Paralabrax clathratus Cabrilla
Centropristis stiatius Sea Bass
Macquaria australasica Macquarie Perch
Epinephelus spp. Grouper; Rock Cod; Cabrilla
Promicrops itiara Jewfish
Promicrops lanceolatus Giant Sea Perch
Plectroplites ambiguus Callop
Mycteroperca venenosus Yellow Grouper
Percalates cononotum Estuary Perch

FAMILY PERCIDAE

Perca fluviatilis Perch
Perca flavescens Yellow Perch
Stizostedion vitreum Walleye; Walleye Pike
Lucioperca lucioperca Sander; Pike-perch

FAMILY CENTRARCHIDAE

Huro salmoides Largemouth Black Bass
Micropterus dolomieu Smallmouth Black Bass
Micropterus punctulatus Spotted Black Bass
Chaenobryttus coronarius Warmouth
Archoplites interruptus Sacramento Perch
Ambloplites rupestris Rock Bass
Lepomis cyanellus Green Sunfish
Lepomis macrochirus Bluegill Sunfish
Lepomis gibbosus Pumpkinseed Sunfish
Lepomis auritus Yellowbreast Sunfish
Lepomis megalotis Long-eared Sunfish
Lepomis microlophus Red-eared Sunfish
Pomoxys nigro-maculatus Black Crappie; Calico Bass
Pomoxys annularis White Crappie

FAMILY DULEIDAE

Dules rupestris Carpe

FAMILY CENTROPOMIDAE

Centropomus undecimalis Snook or Robalo
Lates niloticus Nile Perch

FAMILY NAEMULIDAE

Haemulon album Margate

FAMILY LUTJANIDAE

Lutjanus griseus Grey Snapper
Lutjanus spp. Snapper

FAMILY KYPHOSIDAE

Kyphosus sectatrix Rudderfish

FAMILY SPARIDAE

Dichistius capensis Galjoen
Diplodus rondeleti Dassie
Pagellus lithognathus White Steenbras
Pagellus centodontus Red Sea Bream
Spondylisoma cantharus Black Bream
Pagrosomus auratus Australian Snapper
Pagrus laticeps Roman
Pagrus nasutus Black Biskop
Gymnocrotaphus curvidens John Brown
Dentex rupestris Red Steenbras

FAMILY MULLIDAE—Red Mulletts**FAMILY SILLAGINIDAE**

Sillago ciliata Australian Whiting

FAMILY OLIGORIDAE

Maccullochella macquariensis Murray Cod

FAMILY ARRIPIDAE

Arripis trutta Australian Salmon
Arripis georgianus Tommy Rough

FAMILY SCIAENIDAE

<i>Sciaena saturna</i>	. . . . .	Chinese Croaker
<i>Sciaena antarctica</i>	. . . . .	Mulloway
<i>Sciaena hololepidota</i>	. . . . .	Kabeljau
<i>Cynoscion nobilis</i>	. . . . .	White Sea-Bass
<i>Cynoscion spp.</i>	. . . . .	Weakfish or Weaks
<i>Plagioscion squamosissimum</i>	. . . . .	Pescada
<i>Atractoscion aequidens</i>	. . . . .	Geelbek
<i>Sciaenops ocellatus</i>	. . . . .	Channel Bass
<i>Roncador stearnsi</i>	. . . . .	Spotfin Croaker
<i>Bairdiella chrysura</i>	. . . . .	Yellowfin Croaker
<i>Micropogon undulatus</i>	. . . . .	Corvina
<i>Aplodinotus grunniens</i>	Fresh Water Drum or Sheephead

FAMILY SCORPIDIDAE

<i>Scorpius aequipinnis</i>	Sweep
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FAMILY CHAETODONTIDAE

<i>Angelichthus ciliaris</i>	Angelfish
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FAMILY GERRIDAE

<i>Eucinostomus sp.</i>	Mojarrita
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FAMILY POMATOMIDAE

<i>Pomatomus saltatrix</i>	Bluefish or Tailer
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FAMILY RHACHICENTRIDAE

<i>Rhachicentrum canadum</i>	Cobia; Black Kingfish
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FAMILY CARANGIDAE

<i>Seriola dorsalis</i>	Californian Yellowtail
<i>Seriola lalandi</i>	Amberjack
<i>Regificola grandis</i>	. . . . .	Yellowtail or Kingfish
<i>Caranx hippos</i>	. . . . .	Jack Crevally
<i>Caranx nobilis</i>	. . . . .	Trevally
<i>Trachinotus goodei</i>	. . . . .	Permit
<i>Trachinotus spp.</i>	. . . . .	Palometa
<i>Nematistius pectoralis</i>	. . . . .	Roosterfish
<i>Elagatis bipinnulatus</i>	. . . . .	Rainbow Runner
<i>Chorinemus sancti-petri</i>	Queenfish

FAMILY CORYPHAENIDAE

<i>Coryphaena hippurus</i>	Dolphin
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FAMILY CICHLIDAE

<i>Cichla ocellaris</i>	Tucunaré-assú
<i>Cichla temensis</i>	Tucuivaré-brancho
<i>Crenicichla saxatilis</i>	.	.	.	.	Jacundá-coroa
<i>Astronotus ocellatus</i>	.	.	.	.	Acará-assú
<i>Tilapia nigra</i>	.	.	.	.	Tilapia

FAMILY LABRIDAE

<i>Coriododax pullus</i>	.	.	.	.	Butterfish
<i>Tautoga onitis</i>	Tautog
<i>Achaerodus gouldii</i>	Groper

FAMILY SCARIDAE

<i>Callyodon spp.</i>	Parrot Fish
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FAMILY SCOMBRIDAE

<i>Scomber scombrus</i>	Mackerel
<i>Scomber japonicus</i>	Pacific Mackerel
<i>Sarda sarda</i>	.	.	.	.	Common Bonito; Dog-toothed Tuna
<i>Sarda lineolatus</i>	.	.	.	.	Californian Bonito
<i>Sarda velox</i>	.	.	.	.	Mexican Bonito
<i>Gymnosarda belamis</i>	.	.	.	.	Oceanic Bonito; Arctic Bonito; Skipjack
<i>Thunnus thynnus</i>	.	.	.	.	Bluefin Tuna; Tunny
<i>Germo germo</i>	.	.	.	.	Albacore
<i>Neothunnus macropterus</i>	.	.	.	.	Yellowfin Tuna; Allison Tuna
<i>Scomberomorus maculatus</i>	.	.	.	.	Spanish Mackerel
<i>Scomberomorus sierra</i>	.	.	.	.	Sierra Mackerel
<i>Scomberomorus cavalla</i>	.	.	.	.	Cavalla Mackerel
<i>Scomberomorus commersoni</i>	.	.	.	.	Seer or Katonkel
<i>Acanthocybium solanderi</i>	.	.	.	.	King Mackerel; Wahoo

FAMILY ISTIOPHORIDAE

<i>Makaira nigricans ampla</i>	.	.	.	.	Blue Marlin
<i>Makaira nigricans marlina</i>	.	.	.	.	Pacific Black Marlin
<i>Makaira nigricans tahitiensis</i>	.	.	.	.	Silver Marlin
<i>Makaira mitzukurii</i>	.	.	.	.	Striped Marlin
<i>Makaira albida</i>	.	.	.	.	White Marlin
<i>Istiophorus americanus</i>	.	.	.	.	Atlantic Sailfish
<i>Istiophorus greyi</i>	Pacific Sailfish

FAMILY XIPHIIDAE

<i>Xiphias gladius</i>	Broadbill Swordfish
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FAMILY GEMPYLIDAE*Thyrsites atun* Snoek**FAMILY SPHYRAENIDAE***Sphyraena barracuda* Giant Barracuda*Sphyraena argentea* Barracuda or Scooter**FAMILY MUGILIDAE***Mugil spp.* Mullet**ORDER SCLEROPAREI****FAMILY SCORPAENIDAE***Scorpaenichthys marmoratus* Cabezone**FAMILY TRIGLIDAE (Gurnards)****FAMILY HEXAGRAMMIDAE***Hexagrammos deagrammus* Greenling**FAMILY PLATYCEPHALIDAE***Platycephalus macrodon* Flathead**ORDER HETEROSOMATA****FAMILY BOTHIDAE***Hippoglossus hippoglossus* Halibut*Paralichthys dentatus* Flounder*Paralichthys spp.* Fluke**ORDER PLECTOGNATHI****FAMILY ALUTERIDAE (Leatherjackets)****FAMILY OSTRACIONTIDAE***Acanthostracion quadricornis* Cowfish

COMPILER'S NOTE

A CERTAIN amount of compromise has been necessary in preparing this index.

Dealing first with the scientific nomenclature, more than one fish has had its godfathers remote in space and christenings have been duplicated. The endeavour has been to choose the senior godparent.

Popular and local names have been indexed as closely as possible but there have been difficulties. Reference, for example, has been made to the Wall-Eyed Pickerel (probably the local name for the Walleye which is not a member of the Pickerel (*Esox*) family), and it has, therefore, been indexed under Walleye. The Yellowtail of America is distinct from the Yellowtail of Australia (which in its turn is known as the Kingfish in South Africa and to an increasing degree through Australasia). The latter has, therefore, been indexed under Yellowtail (Australian) or Kingfish. The name Shovelnose Shark is sometimes used locally for the Sandshark, but this possible confusion has been ignored and the index has followed Authors' terms.

In the case of the Allison Tuna and the Yellowfin Tuna, recent investigation appears to bear out the fact that these fish are in reality one and the same species. In the *Classification of Fish Names*, therefore, they appear together as *Neothunnus macropterus*. Since, however, in the text the Author has specifically claimed two separate species (a claim supported by the 1948 Game Records of I.G.F.A.), all references to the Allison Tuna and the Yellowfin Tuna have been separated in the *Index of Fish Names*.

Two cetaceans, members of the porpoise family, have been indexed in *Fish Names* as the reference in the text is to "fishing" for them (or should one say "porpoising"?).

Lastly, sincere thanks must be tendered to Dr. Fraser Brunner for his help as arbitrator in the final choice of scientific terms.

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