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A Publication of the
FOOD RESEARCH INSTITUTE
STANFORD UNIVERSITY

One of a group of studies on
FOOD, AGRICULTURE, AND WORLD WAR II

COFFEE
TEA AND COCOA

An Economic and Political Analysis

By
V. D. WICKIZER

Stanford University Press

STANFORD, CALIFORNIA

FOOD RESEARCH INSTITUTE

Established at Stanford University, Stanford, California, in 1921, jointly by Carnegie Corporation of New York and the Trustees of the Leland Stanford Junior University, for research in the production, distribution, and consumption of food.

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DIRECTOR'S PREFACE

World War II exerted profound influence in the fields of food and agriculture. The repercussions of hostilities, and the measures taken to meet them, constituted events of the first magnitude, reaching intimately into the lives of hundreds of millions of people, affecting their comfort, their health, their very existence. Clear and reliable understanding of the more significant of these events is desirable in itself. It may also contribute to improvements in the conduct of human affairs in whatever contingencies the future brings forth. With a view to providing such an understanding, the Food Research Institute has undertaken, with essential financial support from the Rockefeller Foundation, to insure the competent preparation of a series of some twenty volumes designed to illuminate the complex aspects of food, agriculture, and World War II.

The studies fall into three groups, dealing respectively with wartime management of food and agriculture, international organization and controls, and international commodity developments. Most of the volumes in the first two of these groups are being written by collaborating authors whose wartime experience gave them particular competence for their individual assignments; and over these works the Institute staff is exercising editorial and general supervision. Those in the third group are being written at the Food Research Institute by staff members experienced in commodity analysis.

Wartime management of food and agriculture will be treated in volumes dealing with the United States, the United Kingdom, Canada, Australia, New Zealand, South Africa, Germany, France, Italy, the Danube Basin, the U.S.S.R., India, Japan, and Latin America.

The studies on international organization and controls will include studies on the Combined Food Board and its operations, food relief plans and performance, and wartime food developments in the Middle East.

The international commodity studies will deal with the grains, fats and oils, livestock and feedstuffs, sugar, commercial fertilizers, and the subjects of the present work.

V. D. Wickizer's study of coffee, tea, and cocoa is the first of the series to be published. Its scope extends well beyond the war period proper. Comprehension of postwar developments in these three com-

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COFFEE
TEA AND COCOA

An Economic and Political Analysis

CHAPTER 1

COFFEE, TEA, AND COCOA AS WORLD COMMODITIES

As prized constituents in the dietary of man, coffee, tea, and cocoa assume importance as world commodities that extends beyond statistical measurement. Too many intangibles are involved to permit precise appraisal of their role in the world economy. Strictly speaking, they are not "essential" commodities; they remain luxuries for many, and at times they may be luxuries even to present users. Yet each of these three commodities occupies a place, especially in the Western scheme of living, that is so firmly established that deprivation is considered a hardship.

During World War II millions of Europeans and Americans considered coffee, tea, and cocoa vital to the war effort, and interruptions of supplies were matters of major concern to political and military leaders everywhere. Beyond their contribution to the preservation of accustomed habits under the stresses of war, their continued production in overseas areas was essential to the economic stability of many scattered producing countries. A double incentive thus existed for preserving the flow of trade, in so far as this was possible under the conditions imposed by global warfare.

At the outset it must be made clear that cocoa beans have qualities and uses nutritionally that coffee and tea can never possess, and hence there is some lack of logic in grouping essentially a foodstuff with two beverages having no such attributes. Cocoa and chocolate, the beverages of many centuries, are of relatively minor importance today in comparison with the varied uses of chocolate in confections. Nevertheless, many similarities in historical development, production, trade, and use, based on distinctive flavor characteristics, warrant the grouping employed. Furthermore, from the standpoint of the world economy, each commodity enjoys a similar but distinctive position, as will become apparent in the course of our analysis.

Of the numerous beverages available to man, those of prime importance in the world economy today are not the various alcoholic stimulants of predominantly local origin and consumption, but those derived from certain plants that flourish in distant tropical lands. The many kinds of fermented liquors and distilled spirits found in all

parts of the world do not enter extensively into world trade. They are enjoyed locally or nationally, for the most part, and some are essentially the discoveries or inventions of man's earliest experiments.

Coffee, tea, and cocoa, on the other hand, although used in the tropical and subtropical areas where grown, find their widest acceptance in the temperate regions of the world, and among peoples having relatively high planes of living. All have an ancient history, especially tea, but as beverages of world importance they are of comparatively modern origin.

Today tea is the most widely used of the three leading beverages; coffee is commercially the most important; cocoa ranks third, and has numerous uses as a food. Tea enjoys its greatest popularity in the United Kingdom and the British dominions, but is also consumed extensively in the Orient and elsewhere. By far the principal market for coffee is the United States, although in Continental Europe it has long been highly regarded and remains in demand despite postwar purchasing difficulties. The United States is also the dominant market for cocoa beans, followed by the United Kingdom and the countries of Continental Europe.

Because coffee, tea, and cocoa are all products of the tropics or subtropics, requiring specific environmental conditions for successful growth and a period of years for establishment, wartime loss of access to prewar sources of supply did not permit recourse to alternative sources in the temperate zone. Synthetic rubber could be made to replace and combine with natural rubber; synthetic drugs were successfully substituted for quinine; an acceptable artificial substitute for pepper was produced; but there were no real alternatives for coffee, tea, or cocoa, except as one of the three was available and temporarily substituted for another.¹ With no satisfactory alternatives, the wartime problem of supplies was to secure additional output from any and all sources not cut off by enemy activity.

For one reason or another it was necessary to introduce rationing schemes for one or more of the three commodities in the principal consuming countries. Such schemes, of varying duration, severity, and importance, were designed to assure an equitable distribution of the supplies available. All were a reflection of shortages in supplies, which were significant because of the essentiality attached to coffee, tea, and cocoa by countless consumers.

This volume is concerned primarily with the leading nonalcoholic

¹ There was, however, a great increase in the consumption of juices from home-grown fruits and of soft drinks in nearly all countries, owing to wartime restrictions or interference with importation of the favored products.

beverages of traditional importance to man, and only secondarily with the varied food uses of one of them, cocoa. The commodity from which such a popular confection as the chocolate bar is derived has come to rank as a morale factor with coffee and tea. Whatever their relative importance in their respective spheres, the war demonstrated once again, but on a grander scale, that Western man is a creature of cultivated desires, tastes, and habits that are not easily abandoned.

BEVERAGES IN GENERAL

Beverages are psychologically important in the dietary pattern of practically all civilized people. Some beverages are also physiologically important; others may be harmful. In nations with a high plane of living, beverages as a group have an economic importance often not given proper recognition in dietary and family-living studies. Although under ideal conditions of diet, environment, work, and living the human system demands no liquid other than water, departures from ideal conditions are commonplace; and such irregularities produce a craving for beverages having either a distinctive flavor, stimulating properties, or both.

Because of this common urge to please the palate with a preferred flavor or to gain temporary relief from fatigue and strain, many beverages are strongly associated with the social activities of man. Aside from psychological reasons, the same or different beverages may also serve physiological purposes, such as to quench thirst and thereby compensate for the loss of water in the system by sensible and insensible perspiration, to moisten food or increase its palatability, or to provide food values.

Probably no liquids except water or chilled drinks are used primarily with the motive of quenching thirst. To dilute, wash down, or improve the palatability of food is an important, purely utilitarian, function of beverages. Probably the least important function psychologically is to provide food value, although some beverages may be consumed deliberately for reasons of diet or health. The one feature common to all beverages except water is distinctiveness of flavor. Without this distinguishing characteristic there would be far less variety in the beverages used and available to man.

The vast number and variety of beverages, serving different purposes at different times and being altered in admixture and temperature according to purpose, make any logical classification extremely difficult, if not impossible. Tea and coffee, the infusions, are very

versatile. Each has a distinctive taste and aroma which is appealing with or without foods. Both are stimulants and may be and are used in connection with a variety of social activities or ceremonies.² Neither is ordinarily used chiefly to quench thirst, except when consumed as iced drinks. Their stimulating property, caffeine, may be borrowed for inclusion in so-called "soft drinks," and their distinctive taste may be borrowed for flavoring so-called "milk drinks."

In rating the importance of beverages in the soldier's diet, the United States Army groups them into three categories: (1) thirst quenchers, (2) stimulants, and (3) nutritives. Many beverages, of course, fall into more than one category, but the Army classification rates tea and coffee as "stimulants of the first magnitude" and cocoa beverages as "primarily nutritive drinks."³

Tea and coffee derive their stimulating properties from caffeine; cocoa from theobromine which is closely related. The consumption of these beverages in moderation produces no harmful or unpleasant aftereffects for most people. They are known as the true stimulants to distinguish them from alcohol-bearing beverages in which temporary stimulation is followed by a secondary stage of depression. Of the true stimulants, only cocoa possesses any nutritive value. All three may be consumed mixed with milk or cream and/or sugar—cocoa almost invariably with both.

Some alcoholic beverages come close to filling all of the various functions of beverages as a group; yet their ability to quench thirst or stimulate is limited by the individual's tolerance to alcohol. These, and other beverages of one kind or another, have been used since earliest times to make life more attractive. Those that have survived the very long test of popularity have often undergone modification in taste appeal but not in their powers to "lift" or to facilitate sociability.

In the long history of beverages the true stimulants found a place in the diet because they provided many of the virtues of fermented and distilled drinks without their objectionable features. In more recent years, a great number of manufactured nonalcoholic preparations, the demand for which has been built up by extensive

² Cocoa and chocolate are also ceremonial drinks but of much less importance. In some Latin-American countries the serving of chocolate is traditional in preliminary events leading up to a wedding.

³ Lewis Allyn, "Beverages" in *General Products*, Vol. 10 of Quartermaster Food and Container Institute for the Armed Forces, *A Report of Wartime Problems in Subsistence Research and Development* (1947), p. 4. Fruit beverages are considered essentially thirst quenchers, while bouillon is classed as a stimulant "though it contains no substance which excites or exhilarates the nervous system."

advertising, have sought public favor by the creation of new taste sensations, with or without the stimulation provided by caffeine or a similar ingredient. Many of these contain a high concentration of sugar.

Nutritionists contend that the excessive use of soft drinks, especially among children, is harmful because of its adverse effect on the consumption of foods essential to good nutrition. Most of the commercially prepared and advertised beverages have little or no nutritive value except that derived from their sugar content. Dietary abuse, according to some nutritionists, also occurs from the immoderate consumption of caffeinated beverages, especially when the frequency of eating, as well as the quantity and quality of food consumed, is adversely influenced. The natural stimulants like tea and coffee tend to interfere less because they are usually consumed with only a small amount of sugar or none at all.

The great majority of beverages used with meals have as major purposes increasing the palatability of food and adding to the pleasure of eating. Apart from the maintenance of water balance in the body, only the beverages that assist in the consumption and digestion of necessary foods, however palatable, are considered desirable from a nutritional standpoint. Black tea, i.e., fully fermented tea, which contains less tannin than green tea, is generally recognized as suitable in the diets of most people, even when other beverages are barred for reasons of health.

Cocoa as a beverage stands somewhat in a class by itself. Various versions of the cocoa or chocolate beverage have long enjoyed acceptance among peoples in the Americas and Europe. The beverage is prized for its chocolate flavor but is also nutritious, especially so as it is usually combined with other ingredients having definite food value. The United States Army's version of the cocoa beverage was one of its most popular ration components during the war, retaining its acceptability among servicemen despite regular use. Unlike coffee and tea, the use of cocoa in beverage form seems not to become habitual in usage. The stimulating property in cocoa is relatively unimportant, but like coffee and tea, cocoa is valued for the flavor and aroma of the beverage.

COFFEE

Coffee is commercially more important than either tea or cocoa. In the international political sphere, it has a significance comparable

with that of many basic foods and raw materials. Wide use as a beverage in the United States and Continental Europe gives rise to an overseas trade which, if interrupted or unprofitable, creates problems of first magnitude in the producing countries, with inevitable repercussions elsewhere.

During the interwar period, many years of which were characterized by large surpluses of staple commodities, the world coffee surplus was notable for its size and persistence. Brazil, which bore most of the burden, spectacularly resorted to burning. In the decade before World War II over 68 million bags of coffee had already been destroyed, or enough to meet consumption requirements of the entire world for two and one-half years. Despite such drastic measures, coffee stocks remained abnormally heavy and were not finally liquidated for another ten years—well into the postwar period.

Coffee is one of the few commodities to which national (Brazilian) controls were applied long before *international* control schemes for foodstuffs and raw materials of world importance came into vogue. Failure attended efforts to reach any kind of an international control agreement on coffee until 1940-41. Then the urgent need for Pan-American solidarity in time of war induced the United States to join with fourteen Latin-American coffee-growing countries in a scheme for coping with problems created by the closing of Continental European markets. The Inter-American Coffee Agreement remained in effect throughout the war and until it was terminated in 1948.

All of the Central and South American countries in which coffee is of first importance economically are within the zone of the United States' vital interests focusing on the Panama Canal. Brazil and Colombia, the two leading coffee-producing and -exporting countries of the world, depend more upon the United States than all other markets combined. The third coffee producer and exporter of the Western Hemisphere, El Salvador, "lives" very largely on coffee, and exports almost all of it to the United States. Coffee represents more than half of all Latin-American exports to the United States.⁴ In 1950 the value of coffee shipped exceeded \$1 billion.

Despite tendencies toward diversification of exports, coffee con-

⁴ The five major commodity imports (by value) from Latin America into the United States in 1939 were coffee, cane sugar, copper, bananas, and crude petroleum. The war changed the composition of imports somewhat, eliminating bananas from the list of the first five, and adding raw wool after petroleum. In postwar years (1947 and 1948) coffee and sugar still led the list, but crude petroleum had moved up to third place, followed by copper and wool, with bananas still lagging behind.

tinues to account for 30 to 80 percent of the total value of all exports in seven countries. For 14 Latin-American producing countries as a group the percentage is around 20, about the same as prewar but one-third smaller than in the early 1930's. For these same countries it has been estimated that from 10 to 15 percent of the employed population is engaged in the coffee industry.⁵ The tabulation below shows coffee exports as a percentage of the total value of all exports for selected countries and years.⁶

Country	1938	1942	1946	1948
Latin America				
El Salvador	87.0	78.4	78.9	79.3
Colombia	54.5	75.4	76.7	71.7
Guatemala	63.6	66.7	55.6	61.2
Costa Rica	48.7	57.1	45.5	45.0
Brazil	45.0	26.2 ^a	35.3	41.6
Haiti	49.9	40.5	33.4	34.9
Nicaragua	34.5	25.0	23.9	31.7
British East Africa				
Uganda	7.0	14.5	18.6	22.5
Kenya	20.0	14.3	13.4	17.8
Tanganyika	10.4	9.4	7.6	5.5

^a Distorted because of wartime shipping difficulties.

Most of the countries listed remain primarily, or heavily, dependent upon coffee exports for the exchange that will permit importations of manufactured and semimanufactured goods.⁷ Probably all realize their vulnerability in being dependent upon a single export crop. In time it is expected that as they develop their economic resources the importance of coffee will tend to diminish. Despite distortions in comparisons caused by price changes, it seems that for

⁵ Inter-American Coffee Board, *Study of the World Coffee Situation* (1948) p. 3 (hereafter cited as *Coffee Board Study*). Ten of the 14 producing countries reported a total of almost 5.5 million persons employed in the coffee industry.

⁶ Commonwealth Economic Committee, *Plantation Crops* (London, 1948), p. 38; *ibid.* (1950), p. 35.

⁷ Other coffee-producing countries are more important factors in the trade than some of those listed; but in their total exports coffee is only one of many items, and hence is of much less relative importance. Indonesia normally exports more coffee than El Salvador; but rubber, petroleum, copra, sugar, tea, tin, tobacco, and similar products loom far larger in the totals, and the value of coffee exports before the war was only about 3 percent of the aggregate. Venezuela exports more coffee than Costa Rica; but the value of petroleum and derivatives far overshadows everything else. Mexico exports more coffee than Haiti, but coffee accounted for only 3.2 percent of the total value of Mexican exports in 1946, products of mines and petroleum being much more important.

the Latin-American economy as a whole, a gradual tendency in this direction has been operative for several decades.⁸

Nevertheless it seems likely that coffee will lose none of its stature as a world commodity for a long time, and will continue to play a leading role in the domestic economies of tropical agricultural countries in different parts of the world. Unless consumption is discouraged by excessively high prices, the growing popularity of the beverage appears destined to continue.

TEA

Of all the common beverages tea is the cheapest, it has the longest and most significant history, and today it is surpassed in commercial position only by coffee. From 1933 until World War II tea was subject to a high degree of control under the International Tea Exports Regulation Scheme, and it is to be controlled again when world tea supplies are adequate.

Probably the greatest service of tea to humanity has been in making water drinking pleasant for millions of people over many centuries. Long before Europe "discovered" tea in the middle of the seventeenth century, it had found its place in the agricultural and dietary patterns of Oriental peoples.

In addition to making water drinking pleasant and increasing the palatability of food, tea served another purpose. The poor sanitary arrangements that existed, and still exist in many parts of the Far East, made safe and palatable drinking water difficult to obtain. Whether by design or not, in the process of boiling water for the preparation of tea, germs are killed and no doubt a vast amount of illness is avoided.

Today, next to water, tea is undoubtedly the most widely consumed drink. But from the standpoints of the West and the commer-

⁸ Some of the exceptions, however, are important. Colombia, for example, has become more dependent than ever on coffee in the past two decades, whereas Brazil has become considerably less so. (In the early 1930's coffee accounted for about two-thirds of the value of all exports in both countries.) In some Central American countries, the importance of coffee began to decline earlier. For example, coffee accounted for some 55 percent of the total value of Nicaraguan exports before World War I, but in the 1930's, along with bananas and woods, it became less important as gold and cotton exports expanded. If it had not been for the expansion of gold exports, however, coffee would have had approximately the same importance in 1939 that it had in 1913 and in 1929. Similarly, Guatemala has gradually become less dependent upon coffee during the past decade or so, exports of bananas and chicle increasing in importance while coffee declined.

cial tea industry, only the tea that is *exported* from producing areas has much significance. In such countries as China and Japan exports are a small part of total production. Probably over half of the world's annual tea crop, and a similar proportion of total tea consumption, holds no special interest outside the places where this tea is grown.

Among the numerous international commodity controls in operation during the interwar period, the tea scheme was more soundly planned and more successful than most. It was conceived and operated under British and Dutch leadership, and inspired by conditions of overproduction so typical of the early 1930's. The International Tea Agreement between the producers' associations of India, Ceylon, and the Netherlands Indies, reinforced by legislation in each of the major producing countries, provides in retrospect, a good example of the circumstances and conditions necessary to successful regulation, whether by private interests or by governments. During and after the war the machinery of regulation was maintained in stand-by condition for the day when world tea supplies might once again be excessive.

Although international trade in tea has always been important because of the value of the product, in terms of volume (weight) it ranks low. Among foodstuffs in international trade, tea exports are usually exceeded in value only by exports of wheat, sugar, butter, and coffee; but all of these, other cereals, potatoes, meat products, tobacco, and cocoa easily outrank tea in volume. Total tea exports and re-exports have never amounted to much over a billion pounds or about half a million tons. In commercial importance tea ranks below coffee even though its use is more general throughout the world.

Tea is dominating only in the export trade of Ceylon, but was of growing importance in British East Africa until the war. The following data of the Commonwealth Economic Committee⁹ set forth, for the principal exporting countries, the value of tea exports as a percentage of the value of total exports:

Country	1938	1942	1946	1948
Ceylon	65.4	50.0	53.1	63.0
Nyasaland	46.7	41.6	32.2	32.5
India	14.5	15.9	11.2	15.4
Kenya	13.2	12.9	7.5	5.7
Indonesia (N.E.I.) ...	8.6	"	1.1	2.1
China	4.3	"	3.7	2.0
Japan .....	.5	.5	9.3	0.7

* Not available.

⁹ *Plantation Crops* (1948), p. 25; *ibid.* (1950), p. 23.

Aside from Ceylon, where the value of tea exports in 1949 was again almost 65 percent, the only other country so heavily dependent is Nyasaland, and here the importance of tea has declined in recent years with the rise of other export crops.

The small percentage shown for India is deceptive. Tea is India's second largest export industry. For the country as a whole tea does not loom large in total exports, but for the regions in which it is grown it is of dominating importance—and these regions constitute the principal source of commercial tea production for the world.

Tea has not in recent times been politically as important as coffee, yet developments since the war may be significant. The new postwar political relationships between the one-time strictly British tea-growing areas of the world and London have introduced manifold complications. Certainly the economics and politics of tea in India, Pakistan, Ceylon, and perhaps also British East Africa, are more intimately interwoven than they have been for many decades.

Meanwhile, the hold of tea on millions of consumers throughout the world will undoubtedly continue strong, even if growth in popularity should come at a slower rate than for some other beverages. Unless production costs and prices should continue to rise until tea is no longer the cheapest beverage but becomes once again a luxury, consumption is likely to expand. Because of its already wide acceptance among consumers, the percentage rate of growth in tea absorption will probably not be spectacular.

COCOA

Originally a product of the Americas, cocoa nevertheless was introduced to the Western world via Europe, and well ahead of either coffee or tea. For some 350 years now it has figured in world trade, the principal source of supply shifting over the years from Mexico to Venezuela to Ecuador to Brazil and finally to the Gold Coast of Africa. Except as interesting and colorful history, the early world cocoa trade holds no special significance, because cocoa was then a luxury that could be afforded by relatively few.

During the past 100 years, but especially since the turn of the present century, cocoa has come into its own, as new growing regions in Africa were opened up. Low labor and production costs, plus initial freedom from plant diseases and pests, permitted a rapid expansion in output and exports. Demand came chiefly from the United

States, Great Britain, Germany, Holland, and France. Prices fluctuated widely but the trend was gradually downward for several decades, and world consumption expanded. Finally, in the decade before World War II, cocoa and the chocolate derivatives from the bean emerged from the luxury class, at least in countries with high levels of living; and a vast and promising market seemed to be developing.

The low prices of the 1930's that permitted and encouraged this expansion in consumption were not, however, profitable to growers. Until the Great Depression of the early 1930's, cocoa output was expanding, but the pace had been too rapid. During the war, low prices, serious shipping and labor shortages, neglect of trees, and the spread of diseases, all helped cut down production. The postwar world cocoa position was completely changed into one of shortage rather than abundance. Prices soared, consumption fell, and strenuous efforts were made, by governments and the industry alike, to create conditions of production more conducive to revival of the trade.

Unlike coffee and tea, cocoa was not the object of serious government intervention until World War II. Cocoa production was not organized. Producer controls had been used only to a limited extent in Brazil, and the various agreements attempted among cocoa buyers in West Africa to restrict and regulate competition were unsuccessful. All of this has been changed since the war, but not entirely because of the war. Producing conditions had so deteriorated in British West Africa in the late 1930's that sooner or later government intervention was inevitable.

In the economies of several colonial areas, especially West Africa, the trade in cocoa continues to be of major importance; elsewhere it tends to be small. Despite the decline in output and exports in recent years, cocoa remains of vital importance in the leading producing country, the Gold Coast, where it accounts for nearly half the value of all exports. About one-fifth of Nigerian exports and one-third of those from the French Cameroons are in cocoa. In the Western Hemisphere cocoa was of somewhat comparable importance in Ecuador before the war, but it now accounts for only 15 percent of the value of all export trade of that country. In most other producing areas cocoa is overshadowed by other tropical export crops or by products of mines.

Relative importance of the value of cocoa exports to total exports

is suggested by selected data from the Commonwealth Economic Committee for a prewar and two postwar years (percent):¹⁰

	1938	1946	1948
Grenada	47	26	60
Gold Coast	41	47	59
French Cameroons	34	34	45
Ecuador	23	15	38
Nigeria	17	22	21
Dominican Republic	13	7	21
French West Africa	13	6	8
Trinidad	7	2	7
Brazil	4	4	5
Venezuela	1	2	1

The postwar years shown are before and after cocoa prices reached their peak in 1947. In 1950, with a lower price level for cocoa, the percentages were probably somewhat smaller than in 1948.

The spread of cocoa farming to different parts of the tropics resulted in gains of one kind or another that were fairly widely distributed. As a commodity in the world economy, the stature of cocoa has increased to such an extent that any prolonged interruption or reversal of the prewar trend in growth would be generally deplored.

Although at times exploited by the merchant firms or by fellow countrymen and at other times victims of market gyrations not of their making, thousands of growers have been able to improve their level of living. In West Africa the spread of cocoa farming induced various tribes to abandon their nomadic habits, stop intertribal warfare, settle in villages, and taste some of the fruits of Western civilization.¹¹ In other places, e.g., Brazil, the development of cocoa growing led to badly needed improvements in roads and other facilities of communication.

Expansion of West African cocoa output also made possible the development of sizable chocolate industries in the principal consum-

¹⁰ *Plantation Crops* (1948), p. 52; *ibid.* (1950), p. 47.

¹¹ An official British investigating group (the Nowell Commission) summarized its observations on the Gold Coast in 1938 as follows: "We found in the Gold Coast an agricultural industry that perhaps has no parallel in the world. Within about forty years, cocoa farming has developed from nothing until it now occupies a dominant position in the country's economy—cocoa being virtually the only commercial crop—and provides two-fifths of the world's requirements. Yet the industry began and remains in the hands of small independent native farmers. In spite of casual methods of production, the Gold Coast industry shows signs of great vitality—and should maintain its pre-eminence for a long time to come." Great Britain, *Report of the Commission on the Marketing of West African Cocoa* (Cmd. 5845, September 1938), p. 145.

ing countries, providing sufficient volume for mass production of confections, lower costs, and lower prices to consumers. Despite mechanization, employment increased in these industries. The quality of the cocoa grown in the newer areas was not as good as that formerly supplied by some of the Western Hemisphere sources, but manufacturers developed processes for using the lower grade beans to make better products than before.

Lowering of costs, product improvements, and other advances made cocoa and chocolate products available to the masses—in many countries for the first time. Although in postwar years of shortage and high prices cocoa tended to become a luxury once more, expectation was general that this setback would be fairly temporary.

Finally, after the war the trade in cocoa assumed a new importance in the economic affairs of the British government. The capacity of cocoa to earn much-needed dollars was enhanced by high world prices, and it took its place among the leading exports of primary products from British sources. Before the war, when cocoa prices were only a fraction of those ruling in postwar years, the earning capacity of cocoa exports was of far less significance.¹²

Because of its food value¹³ and general acceptability, chocolate in

¹² The tabulation below, taken from the *Economist* (July 30, 1949, p. 254), shows the importance of primary products as dollar earners for the sterling area, and is based on the value of exports from sterling area countries to the United States and Canada (in million £'s):

	1938	1946	1947	1948
Primary products				
Rubber	16	37	57	45
Jute (incl. mfrs.)	6	22	21	43
Wool	2	37	39	34
Cocoa	1	10	20	27
Tin	6	..	8	20
Tea	2	11	12	14
Diamonds .....	..	9	4	5
British manufactures	24	44	58	96

Before the end of 1948 the dollar proceeds of several of these commodities were already falling. Cocoa, e.g., fell sharply in October to half its high, while rubber and tea had also passed their peak prices. In the second quarter of 1949 earnings from rubber, tin, cocoa, and wool were only about half the £120 million level of the first quarter, reflecting both a decline in prices and a fall in volume. But in 1950, especially after the start of the war in Korea, the situation was again reversed.

¹³ The cocoa bean is a natural food concentrate, composed more than half of fat (cocoa butter), but with carbohydrates and proteins representing the remainder—all essential ingredients of a balanced diet. Its energy value is high, almost 3,000 calories per pound. When converted to common products such as cocoa powder and milk chocolate, the range of caloric value is from some 2,100 for the former to over 2,600 calories per pound for the latter.

one form or another seems likely to grow in popularity, provided its price is within the reach of the masses. In the past it was the many uses of the bean, its high food value, and its low cost that led to expansion of production in tropical areas and increased consumption in temperate zones. Given favorable conditions, the potential utilization of cocoa and chocolate products seems enormous, especially in more advanced countries.

PART I
COFFEE

CHAPTER 2

EVOLUTION OF THE COFFEE ECONOMY

Impressive and perhaps significant changes have occurred in the evolving world coffee economy in recent years. Largely responsible is World War II. The war *may* have had such an impact on coffee that the industry is destined in the future to have a maturity and degree of stability never achieved heretofore. On the other hand, the recent "new era" of relatively minor problems *may* be only an interlude in the long history of industry troubles. As the decade of the 1950's opened, this was the minority view.

Whether or not the adjustments of recent years will have enduring value in creating a more permanent balance between coffee production and consumption is perhaps the key question. The answer, affecting millions of people in various parts of the world, would suggest the kind of economic and political relationships to be anticipated in the years ahead.

CHANGING FACTORS IN THE COFFEE SITUATION

Historically, the chief problems of the world coffee industry have been mainly those of the producer rather than the trader, distributor, or consumer. Because four-fifths or more of the world supply comes from Latin America (mostly Brazil and countries bordering on the Caribbean), world coffee problems are, and have long been, primarily Western Hemisphere problems. And this has special political significance since by far the largest market for coffee is found in the United States. Until recent years coffee has presented perhaps more critical problems during the present century than almost any other commodity of comparable world importance.

During World War II world coffee consumption, as well as production, became more than ever concentrated in countries of the Western Hemisphere. The European Continental market, which absorbed about 40 percent of world coffee exports before the war, was closed. The United States, which was already taking more than half of total world exports, became the only important outlet for Latin-American coffee.

The countries of Continental Europe are again accessible to the

coffee producers of the world, but they have not regained their prewar importance—nor is it likely that they will. The long-term trend in coffee consumption has been away from the Old World to the New. On the other hand, the long-term trend in production may be away from the Western Hemisphere. Certainly there are signs of gradual dispersion in supply sources, lessening the long-time dominance of Brazil.

Nearly all of the really serious problems of the coffee industry in the past have stemmed from the same source: fundamentally the nature of the demand for and supply of coffee. Year-to-year market requirements tend to be relatively stable, but available supplies have been highly variable, owing to frequent and wide fluctuations in crop yields. The effect on prices has usually been pronounced. Almost of equal importance, in view of these inherent demand-supply relationships, has been the concentration of such a large part of world production within a relatively small area in Brazil.

To cope with sharp fluctuations in the annual output of coffee, some approach to market stabilization is theoretically possible through storage of the surpluses from large crops to be drawn upon in years of short crops. Basically this was the thought behind the various Brazilian control schemes. But attempts to manipulate the market resulted ultimately in creating even greater maladjustments in supply-demand relationships than existed before. The excessive world coffee supplies that persisted throughout the 1930's can be attributed directly to Brazilian control experiments of the 1920's.

Believers in a permanent "new era" for coffee leave the impression that surplus problems are now a thing of the past, that fundamental supply-demand relationships have somehow changed, and that, while problems still confront the industry, they are of relatively minor importance. Especially optimistic is the official report of coffee-producing interests in the Western Hemisphere, as expressed through a 1948 report by the late Inter-American Coffee Board.

After reviewing developments of recent years, the conclusion is reached:

The most recent crisis in the world coffee industry has undoubtedly induced more profound and enduring adjustments than those of any previous period. The effect of these adjustments, particularly those in Brazil, will probably bring about a more permanent equilibrium between coffee production and consumption. . . .¹

¹ *Coffee Board Study*, p. 13.

And elsewhere in the report (p. 31):

The outlook . . . is very encouraging. Surplus supplies . . . are merely nominal . . . prices are expected to continue at a remunerative level . . . economic and technical conditions . . . do not favor a rampant and uncoordinated expansion of production which will flood the markets after 1950. The . . . industry appears to have reached a period of prosperous maturity and to have rid itself of many of the influences which in the past operated to make prosperous conditions a prelude to overproduction and unprofitable prices.

These conclusions of the Board's experts are indeed reassuring, but possibly premature. In fairness to the authors of the Board's report it should be noted that a statement is made (p. 13) that equilibrium conditions "favorable to both producers and consumers" are "exceedingly hard to achieve and the experience of the past indicates that *such desirable conditions are harder still to maintain*" (italics supplied). With this small but "official" doubt about the future, there is justification for pursuing the analysis.

VARIABILITY IN THE SIZE OF CROPS

The most significant developments in the modern economic history of coffee are all traceable to a single characteristic of the commodity — it is the product of a tree with a highly variable yield. Broadly speaking, the resulting variability of supply has two aspects: year-to-year fluctuations in the size of crops, and periodic variations in supplies arising from annual yield fluctuations plus new planting. All of the various attempts over a long period of years to control and regulate the flow of supplies to market have been the outgrowth of conditions created by these variations.

Throughout the nineteenth century we can trace the history of this anarchic succession of over-production and under-production of coffee. Delight in a year when prices have been high is translated into an undue extension of planting, which, four years later, leads to the recurrence of rock-bottom prices. Then there is a panic. In the seventh year, the pendulum swings back once more towards the side of extended planting.²

Although the above statement is an oversimplification, a substantial record of experience existed long before Brazil first resorted to serious measures of valorization early in the present century. During the interwar period, control measures themselves influenced the sequence of events leading to oversupply. But except for periods of pro-

² H. E. Jacob, *Coffee, the Epic of a Commodity* (New York, 1935), p. 210.

longed chronic surplus the supply that became available as the result of each season's harvest remained the strongest influence on prices.³

Variability of supply, the oldest problem of the coffee industry, arises from a complex of factors, chief of which are the nature of the coffee plant and weather.⁴ Local weather conditions and weather fluctuations affect the yields of all crops, but additionally the coffee tree has a yield cycle of its own, bearing less immediately following a large output. When the trees are rested and the weather is favorable, the crop will be unusually large; when the trees are exhausted from having yielded heavily the previous season, and weather conditions are unfavorable, an unusually small output will result. It is not surprising, therefore, that the size of the world's annual coffee crop is not easily predictable.

Sharp fluctuations in year-to-year yields of the coffee tree are evident in all coffee-growing countries. They seem to be especially marked in regions near or in the temperate zones, which are subject to more erratic weather than prevails in strictly tropical climates. Characteristic variations in yields are such that the output of a specific plantation may at its high be ten times the production at its low. The coffee grower has very little control over this condition of production imposed upon him by nature. With tree crops output cannot, of course, be adjusted from one year to another by planting activities. Several years are required to bring coffee trees into bearing, and, once in production, they are not readily abandoned or destroyed by their owners.

Wherever coffee is grown, large yields tend to be followed by lower yields, and low yields to be followed by higher yields. Frequently, though by no means invariably, large yields alternate with low yields. A heavy yield so depletes the yielding power of a tree that even very favorable weather conditions fail to compensate, until a light crop has enabled it to replenish its reserves. When weather

³ During recent decades the Brazilian coffee crop has ranged in size from some 9-10 to almost 30 million bags. An examination of the record over half a century reveals similar variations and suggests that bumper crops add much more to world supplies than crop failures subtract from them, a tendency of utmost significance for the problems of production control and price stabilization. V. D. Wickizer, *The World Coffee Economy, with Special Reference to Control Schemes* (Food Research Institute, Commodity Policy Studies 2; Stanford University, 1943), pp. 109-10.

⁴ Other factors affecting the annual yield of an individual coffee tree are its variety, age, recent yielding record, the prevalence of diseases and pests in the area where grown, the care given it, and so on. These numerous minor influences are somewhat predictable or controllable, with the possible exception of diseases and pests. Ordinarily, some reasonable allowance can be made for them in forecasting the size of crops.

conditions tend to vary considerably, as in southern Brazil, extreme variations in output are the more readily explained.⁵ It does not necessarily follow, however, that yields in the strictly tropical producing countries are less variable. Factors other than weather, such as the incidence of diseases and pests, may be greater. Reliable information upon this subject is not available, nor are data on yields for more than half a dozen of the more important coffee-producing countries.

The coffee crop is subject to erratic influences everywhere. Cold winds and frost are enemies always to be feared in Brazil. Cold winds cause more damage during the flowering period than frost during the winter months when trees are in a dormant state. Occasionally, as in 1902 and 1918, their effects have been so devastating that a radical reduction of yield has occurred at a time when a large or moderate one might otherwise reasonably have been expected. The great frost in 1918 destroyed many trees in São Paulo and reduced the 1919/20 crop by over 60 percent. Even if frost does not kill the trees, it may stunt their growth and lower their yielding power for several years. Drought or unfavorable distribution of rainfall may also affect both the quantity and quality of a season's output, especially in growing regions located along the outer fringes of the tropical belt. The prolonged 1940/41 drought in the state of São Paulo was described as "one of the most calamitous of any in the memory of man in that region," reducing the São Paulo crop to only 4 million bags against an average of 14.5 million bags in the three preceding years.⁶ In other parts of the world, erratic influences such as typhoons or pests may be more important than frosts or droughts. Because of these and other factors, and the rate of development of trees, neither Brazil's output nor the annual world coffee output is predictable with any approach to assurance.

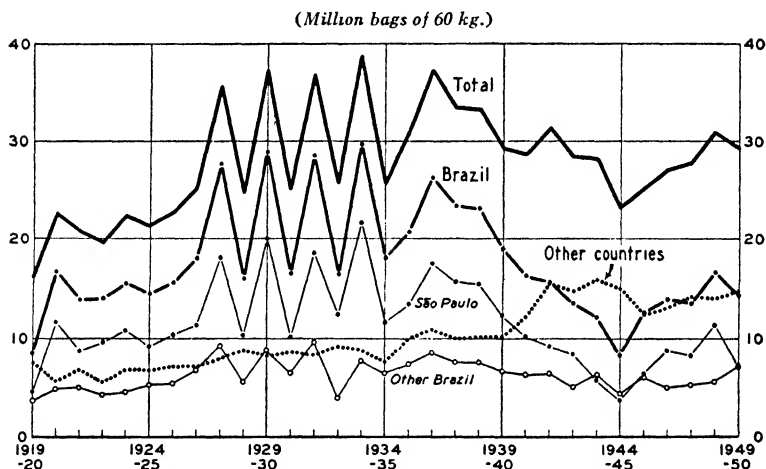
The problem of supply variability inherent in coffee growing has been accentuated by the heavy concentration of production in one part of the world. For many decades, three-fifths or more of the world coffee output has come from Brazil, and about two-fifths of the world total from a single state, São Paulo.

⁵ Parts of southern Brazil, and other coffee-growing countries similarly located, may be expected to show the greatest variations in crop yields, owing to the dual influence of the coffee tree's cycle of yielding power and of less stable climatic conditions. There is, however, no satisfactory evidence on this point.

⁶ J. F. Guedes, *Brazil Coffee in 1941* (Report submitted on Apr. 30, 1942 to the Advisory Council of the National Coffee Department by its President; Rio de Janeiro, 1942), p. 45.

If the world's coffee trees were more evenly distributed over the different continents—and there is some tendency in that direction—variations in yields would tend to offset one another. When such a large proportion of all bearing trees continues to be concentrated in a relatively small area, however, the effect on the world's annual supply is very pronounced. This is clearly shown in Chart 1.⁷ Compensatory possibilities are further limited because types of coffee grown in the different countries are not interchangeable.

CHART 1.—AGGREGATE COFFEE PRODUCTION IN SÃO PAULO, OTHER BRAZIL, AND ALL OTHER COUNTRIES, 1919/20 TO 1949/50*



* Data from sources indicated in Appendix Table IV.

⁷ During the interwar period, except for the five years 1929/30 to 1933/34, aggregate coffee production in São Paulo was almost identical with production in all countries outside Brazil, as indicated below, in million bags:

Five-year period	São Paulo	Outside Brazil
(1) 1919/20 to 1923/24	40.0	39.6
(2) 1924/25 to 1928/29	56.0	56.2
(3) 1929/30 to 1933/34	85.1	65.9
(4) 1934/35 to 1938/39	74.5	74.9

Total, periods (1), (2), (4)170.5 170.6

A fair basis of comparison is provided, therefore, between the variability of the 40 percent of world production concentrated in São Paulo and the 40 percent dispersed over Latin America (ex-Brazil), Asia, and Africa.

The chart shows how much sharper yearly fluctuations in output have been in São Paulo than in the other coffee-producing countries, states, or colonies as a group. Average deviation from trend over 15 years (omitting the period 1929/30 to 1933/34) was 1.8 million bags for São Paulo and only 0.5 million bags for other countries. Despite the relative stability of annual output of the "other countries" as a group,

RELATIVE STABILITY OF DEMAND

Unlike the coffee supply, coffee consumption does not vary much from one year to another. Demand is very mildly responsive to changes in prices or in purchasing power within brief periods. Growth of population and changes in habits accompanying persistently high or low prices to consumers largely account for discernible changes in the volume of consumption. Unlike many foodstuffs, coffee has only one significant use, and for most of those accustomed to drinking it no fully acceptable substitutes are available. As long as the one all-important use of coffee is for the brewing of a beverage, there will be narrow limits to the adjustments in consumption that can be achieved solely through price changes from year to year.

Coffee has an established place in the dietary of most users. Contrary to fact, it is commonly regarded as a food. Its unique flavor and aroma, and its contribution to one's sense of well-being, place it high in a group of commodities that are prized for their value as stimulants.

All of the so-called enjoyment goods of world importance tend to be habit-forming. Hence, devotees have difficulty in finding substitutes, and higher prices, over the short term, have less immediate effect on consumption than they do for many foods. The average coffee consumer considers a certain minimum number of cups per day as a necessity, and only those over and above this amount are regarded as having sufficiently less utility to be omitted. It is not surprising, therefore, that habitual users of coffee tend to rank its continued availability almost as important as the satisfaction of the basic want for food.

Since green coffee is not highly perishable, and storage costs are not heavy, variations in stocks voluntarily held by producers, middlemen, and traders in futures contracts help to moderate the influence of highly variable annual outputs on price. But the commercial risks involved are so large that wide fluctuations in prices of green coffee tend to occur nevertheless.

Under such circumstances, in the absence of government intervention, coffee growers find that large crops bring distressingly low

the variability of São Paulo plus "other Brazil" gives a weighting to Brazilian production that is reflected in the irregular curve for "world total." If and when world coffee production becomes further dispersed geographically, one may reasonably expect annual fluctuations in aggregate output to diminish. The migration of coffee in Brazil, however, has been southward. The recent notable increase in production of Paraná, which is below the frost line, makes for greater risks, and possibly for greater variability within Brazil.

prices, and that large crops often bring less income than small crops. Growers tend to underrate the compensating influence on their income from the inverse variation of crops and prices. Like other agricultural producers, they are easily persuaded that middlemen derive large speculative gains at their expense. Hence, in Brazil especially, they long sought to further their interests by governmental regulation of coffee marketing.

Large annual variations in supply coupled with a highly inelastic short-run demand are the circumstances that inspire attempts to exercise control over the production and marketing of coffee. Marked variations in Brazilian production and the attendant repercussions on coffee prices, financial returns to growers, and the country's economic well-being led to early advocacy of some form of market control in that country. By withholding from the market supplies in excess of normal requirements when crops were large, and then releasing stocks during years of relative scarcity, it was hoped to influence coffee prices and incomes of growers favorably. Such control, it was felt, would also obtain for the coffee grower the speculative gains ordinarily accruing to middlemen and merchants.

LONG HISTORY OF CONTROL EFFORTS

Coffee has been subject to artificial controls for a longer period than any other agricultural commodity of world importance. Until the Inter-American Coffee Agreement of 1940, such control was primarily a Brazilian affair, although several unsuccessful attempts were made to extend it to other coffee-producing countries, especially in the 1930's. Brazil's experimentation with control schemes was feasible only because of her long dominance of the world's coffee production and trade.

The effects of Brazilian activities in the coffee market, extending over almost four decades, were inevitably international in character. In several instances the control measures seemed successful, though in retrospect certain of the successes appear largely adventitious. This was especially true of the first three early experiments known as "valorization" schemes. Their apparent success, to whatever due, led to more ambitious adventures in control which were disastrous failures. The valorization schemes sought to raise coffee prices above a subnormal level and were regarded as temporary measures to meet abnormal conditions. Not until the general postwar collapse of 1920 and the relatively large crop of 1920/21 did conditions arise that led

to a plan of continuous control. Brazilians referred to this system as "coffee defense."⁸

The story of Brazil's "defense" of coffee prices at phenomenally high levels in the late 1920's and the spectacular collapse of the market-rigging scheme in the early 1930's is well known and need not be recounted here. The final liquidation of this earlier experience, however, forms part of the pre-World War II background explaining the position of coffee at the outbreak of the war. (A general review of developments during the 1930's will be found in Chapter 4.)

Brazil's difficulties of the 1930's were largely the result of a misplaced faith in artificial controls. So long as valorization schemes were introduced to meet special and temporary situations, the by-products of control had no lasting significance. With the plan of permanent defense in the 1920's, however, a host of new problems, evils, and complications were introduced that had profound significance for the development of the Brazilian economy.

In broadest terms, permanent coffee defense during the 1920's undoubtedly brought growers abnormal profits for a period of a few years, but the price paid for such prosperity in later years more than offset the temporary gains. High coffee prices doubtless slowed progress in the expansion of world coffee consumption and created a certain amount of international friction. Brazilian coffee control resulted in an even greater concentration on one crop, discouraged agricultural diversification, and stimulated competition from other coffee-growing countries. Although coffee assumed an even more prominent place in Brazilian economic life, Brazil's relative position in the world coffee trade tended to deteriorate, and in the 1930's this tendency continued at an accelerated rate.⁹

MANY YEARS OF OVERPRODUCTION

The persistence of excessive coffee supplies in relation to effective demand in the prewar decade was a condition largely originating in Brazil. It was also primarily the problem of Brazilian growers, though the effects of a decade of surpluses in Brazil were felt throughout the coffee world. In the 14 years 1931-44 over 78 million bags of coffee

⁸ For a summary of early Brazilian experience with valorization and a detailed account of later, more fully developed, controls that were attempted under "coffee defense," see Wickizer, *op. cit.*, pp. 137-65.

⁹ When coffee control was first tried in 1906, Brazil supplied four-fifths of the world market. By 1937, when controls were finally abandoned, Brazilian coffee accounted for only half of aggregate world exports, and almost 57 million bags of coffee had been destroyed since 1931.

went up in smoke—enough to supply world consumption requirements for at least three years.

When an excessive number of producing trees, resulting from an earlier overextension of planting, became the underlying cause of oversupply, rather than unexpected bumper crops, the market effects became lasting. Growers, always reluctant to abandon or destroy trees that require several years to bring to bearing, clung to hopes that, as many times before, conditions would be set right by unforeseen events. Unfortunately, the conditions grew worse rather than better.

Brazilian price-supporting schemes in the interwar period stimulated production not only at home but in other coffee-producing countries of Latin America, Asia, and Africa. Production in Africa and Asia was further stimulated by the tariff protection and preferential treatment accorded colonial coffees in the metropolitan markets. Such protection was introduced or increased about the time Brazil's situation became most acute, and accentuated the difficulties that reached a climax during the world economic depression of the early 1930's.

Brazilian coffees, long the major portion of the world's supply, are considered by the trade in a class quite apart from all other coffees. Although not with strict accuracy, the coffees grown in all countries outside Brazil are classed as "milds." So-called mild coffees are considered better in quality, sell at higher prices, and, though available in smaller volume, offer Brazilian bulk coffees competition in quality more than in price. Milds are commonly used to impart flavor to blends predominantly composed of various Brazilian growths. Over several decades, their importance in world trade and consumption has grown even more than their importance in world production.¹⁰ This is the most significant aspect of the decline in the dominance of Brazil in the world's coffee trade.

Because of the superior quality of much of the output outside Brazil, and because of the artificial price differential prevailing over extended periods between Brazilian and other coffees, the burden of the world-wide tendency toward expanding coffee production fell most heavily on Brazilian growers. In general, the mild coffees found ready markets, and the excess supplies accumulated in Brazil.¹¹ Non-

¹⁰ Non-Brazilian production, though almost doubling during the interwar period, remained at slightly over two-fifths of world output. Non-Brazilian exports, however, rose from around 38 percent of the world total in 1919-23 to approximately 46 percent in 1934-38.

¹¹ One authority on coffee, Antonio Di Fulvio, contends that "this apparently

Brazilian producers profited as Brazilian coffee fell into the position of making up the difference between world coffee consumption and the production of mild coffees.

Creation of overcapacity and surpluses.—The inherent annual variability of world coffee output would not necessarily lead to overcapacity and overproduction if it were not for its effect on prices and the consequent influence on new planting. And if it were not for the control measures employed to deal with the problem, world coffee surpluses would certainly have been less embarrassing during the 1930's. Uninfluenced by additions to producing capacity, characteristic fluctuations in annual coffee yields alone should not lead to more than a temporary surplus problem.

A series of moderate- or small-sized crops in Brazil, as between 1921/22 and 1926/27, facilitates the disposition of surpluses. But three record crops within five years, as between 1929/30 and 1933/34, create exceptional problems of disposition. These record crops, however, were less the result of favorable growing and harvesting conditions than of the large increase in productive capacity resulting from the high prices of coffee under control between 1924 and 1929.¹² The post-World War II period of high coffee prices might produce similar effects, especially if the record levels prevailing at the opening of 1950 were to be maintained very long.

Chart 2 (p. 31) shows the rough relationship between supplies, demand, and prices over a long period of years. At no previous time in the half-century covered by the graph was coffee production so consistently in excess of consumption as during the period beginning in the late 1920's. Prices of Brazilian coffee in the New York market averaged higher from mid-1924 to late 1929 than during any other comparable period until the late 1940's. Although data on world new

justified opinion is in fact quite mistaken, since it is only half the story. . . ." His point seems to be that after 1937, when Brazil abandoned "coffee defense," the drop in prices of Brazilian coffees brought down the prices of milds also, and all producing countries suffered. This is, of course, true because Brazil has always been the price leader, yet the admitted interdependence of coffee-growing interests does not seem to negate the statement above. International Institute of Agriculture, Bureau of FAO, *The World's Coffee* (Studies of the Principal Agricultural Products on the World's Market 9; Rome, 1947), pp. 6-7 (hereinafter cited as *The World's Coffee*).

¹² The table below illustrates how a highly variable world supply, a relatively stable but growing demand, and the level of coffee prices interacted to create excess supplies requiring years for adjustment. The data should be regarded as merely approximating the sequence of developments and the magnitude of changes. At the end of the first 5-year period the world supply-demand relationship was one of approximate balance, but at the close of the 1920's production was outstripping consumption. According to Brazilian figures, domestic consumption amounted to approximately 67 million bags for the 15 years 1924-38, and destruction between 1931

plantings are largely lacking, the expansion in the number of producing coffee trees in the state of São Paulo may be taken to indicate the consequences of grower optimism attributable to abnormally high prices. Another curve shows the amount of adjustment in the world supply situation that was effected by the coffee-destruction program in Brazil between 1931 and 1944.

Prior to the interwar period there were years of over- and under-production due both to yield variability and to the expansion in productive capacity. Storage-valorization schemes, sponsored by Brazilian growers, were employed successfully to bring about adjustments without seriously or permanently retarding the long-term progress of the industry.

The problem of overproduction of coffee was approaching solution at the outbreak of World War II. In the natural course of events, depressed or unprofitable coffee prices discourage new planting until production is brought into adjustment with consumption. In the past the Brazilian industry has always recovered despite government intervention, owing to the persistent growth in world consumption and fortunate circumstances of weather.¹³

and 1938 amounted to 65 million bags. Subtracting these totals from the cumulative excess of 145 million bags leaves 13 million bags. At the close of 1938, Brazilian stocks were officially reported to have been reduced to something over 4 million bags, and world visible supplies were under 8 million. Roughly a million bags could easily have been consumed in other producing countries.

WORLD COFFEE PRODUCTION, EXPORTS, AND PRICES, BY FIVE-YEAR AVERAGES, 1919-39
(Million bags of 60 kg.; cents per pound)

Marketing period	Production	Export years	Exports	Average annual excess of production over exports	Cumulative excess	Price of Santos 4's (New York)
1919/20 to 1923/24.....	20.4	1919-23	20.6	— .2	—1.0	16.7
1924/25 to 1928/29.....	28.6	1924-28	22.9	5.7	27.5	22.0
1929/30 to 1933/34.....	37.9	1929-33	25.3	12.6	90.5	12.8
1934/35 to 1938/39.....	37.9	1934-38	27.0	10.9	145.0	9.7

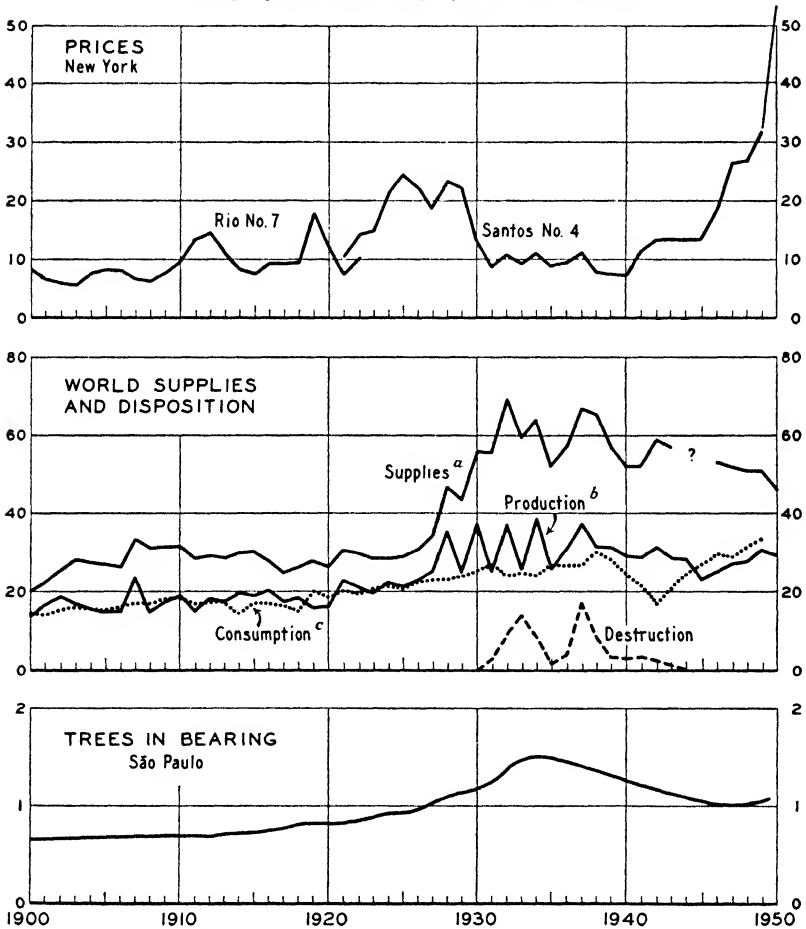
By the close of the 1940 decade demand exceeded reduced world production (around 30 million bags), long-held surplus stocks had been exhausted, and variations in current crops once again became the dominating influence on prices. The threat of shortage from a prospective small 1949/50 Brazilian crop helped to boost prices to spectacular heights (pp. 127-29).

¹³ In Brazil there is a saying that "God is a Brazilian." This reflects an unquenchable faith that, even when controls have broken down, events will occur to rescue the industry from critical situations. Rains or frosts have come, as needed, upon numerous past occasions. Hence voluntary adjustments by growers themselves have tended to be slow and delayed as long as possible. The impact of World War II on the Brazilian economy may have changed all this, but despite urban development and industrialization, which have attracted both coffee capital and labor, this seems unlikely (see pp. 134-41).

The question now seems to be, in the absence of artificial controls: "Can it reasonably be expected that growers, long accustomed to depend upon government intervention and assistance in one form or another, will so modify their traditional reaction to prosperity that excesses of the past will not be repeated in the future?" The late

CHART 2.—COFFEE PRICES, WORLD SUPPLIES AND DISPOSITION, AND TREND IN PRODUCTIVE CAPACITY, 1899/1900 TO 1949/50*

(Cents per pound; million bags of 60 kg.; billion trees)



* Data from sources indicated in Appendix Table IV.

^a Production plus stocks.

^b Exportable production during marketing years ending in year indicated.

^c Deliveries in importing countries until 1919/20; world net imports thereafter.

Inter-American Coffee Board seemed to think so, yet at the same time it pointed out that research and cultural improvements in the industry had been slow because growers felt that such innovations had very little influence on yields, prices, or profits. Since the principal influences on both supply and demand "are beyond the immediate control of coffee producers . . . many . . . undoubtedly hold the opinion that about all they can do is to decide whether to plant new trees or to retire old ones."¹⁴

APPROXIMATION OF BALANCE IN POSTWAR YEARS

The Coffee Board's study of the world coffee situation did not suggest what influence the prospective favorable outlook might have on new planting; it leaves unanswered the question of probable trend in production after 1950. But it safely foresaw good conditions for a few years ahead and concluded that there was no longer need for an international coffee agreement. The Pan-American Coffee Bureau's estimates of exportable production and prospective consumption suggested a coffee shortage by 1950. It was expected in some circles that the surplus in Brazil would be entirely eliminated by mid-1950.

All of these conditions or beliefs made for firmness in coffee prices early in 1949 when other commodities were generally declining. Because of the approximate balance achieved between production and consumption, it was anticipated that price fluctuations would be wider than for many years past. The "explosion" occurred in late 1949 with forecasts of a poor 1949/50 Brazilian crop. Only a year earlier it was thought that stocks might accumulate again, in view of larger prospective production, and that pressure on prices would naturally follow.¹⁵

The war and wartime developments actually benefited coffee, and postwar readjustments were much less painful than was anticipated earlier. Gains on the economic front, however, were partially offset by added complications in political relationships, especially within the Americas. The largely political devices considered necessary in support of common wartime objectives helped to create serious post-

¹⁴ *Coffee Board Study*, pp. 33-34.

¹⁵ In mid-1948 it seemed that the European Recovery Program would do little more than maintain Latin-American coffee exports to Europe at recent levels. The prospect was for larger world production, the Brazilian crop alone being estimated at 18.4 million bags, about 16.8 million of which would be available for export. With Latin America's reluctance to sell except for dollars and with dealers' desires to keep inventories low, some thought that stocks would increase and prices turn soft. Instead, new all-time highs were reached in following months (p. 131).

war problems and increased the dependence of Latin America upon the United States.

As a by-product of the war the problem of overproduction of coffee was greatly eased, consumption was stimulated in the world's leading market, and the growing of coffee again became remunerative. Although losses were experienced in the European market, perhaps not to be entirely regained, the competitive position of coffee was improved in markets that count most. Offsetting these effects were the circumstances, supplied by the war, favoring much-needed diversification in the economies of several coffee-exporting countries.

During the war plantations were often neglected, permitting diseases to spread and lowering the quality of crops. These same developments, however, helped to reduce supplies and brought a period of relative shortage which caused coffee prices to rise to more profitable levels than had prevailed for many years.

But high coffee prices during the postwar boom became a potential weakness and acted as a brake on the revival of the European market. Coffee buyers in consuming countries, especially the United States, became wary of the high-price structure and generally refused to be tempted into inventory speculation. Burdened with currency and exchange problems and the continuation of many prewar taxes and import duties, Latin-American growers looked chiefly to the United States market. Any serious deterioration in economic conditions there would be felt immediately in producing countries.

The increasingly important United States market became more quality-conscious and many growers found it difficult to regain ground lost during war years when insufficient incentive existed for maintaining standards. The coffee industry in the United States became increasingly concerned about assuring adequate supplies of quality coffees, and it was hoped that prevailing high prices would raise quality by encouraging better plantation operations.

Certainly the statistical position of coffee during the early postwar period was greatly improved. How long the approximate balance could be maintained was another matter. On the assumption that high coffee prices would last for a long time, the producing countries of Latin America went on a buying spree which only added to the inflation potential, already great as the result of wartime developments and the absence of adequate controls. Pessimistic forecasts on the future of Brazilian coffee production were cited to support the view that supplies would remain on the short side for some years ahead and that balance could be maintained in the world statistical position.

Many of the so-called "problems" of the world coffee industry are not by any means new or the result of the war. In our further analysis it seems desirable to proceed on the assumption that perhaps a new era is not actually at hand and that the industry has not completely "rid itself of many of the influences [whatever they may be] which in the past operated to make prosperous conditions a prelude to over-production and unprofitable prices," as the Coffee Board contended in 1948.

CHAPTER 3

SOME ASPECTS OF COFFEE GROWING AND MARKETING

Changes in world coffee production, trade, and consumption continue to point toward "maturity" of the world coffee industry, but maturity is not synonymous with progress. In many directions real achievements have come with maturity; in others the seeds of future troubles are unwittingly being sown.

In considering the major problems confronting the world coffee industry, the Coffee Board was undoubtedly correct in singling out as "perhaps most important of all" the need for the industry "to apply the results of a program of scientific experimentation and research directed toward the improvement in practices in the planting, cultivating and processing of coffee."¹

So important is this subject in any appraisal of what may be expected from a mature industry that the present chapter examines it in somewhat more detail than would otherwise be justified.

DEVELOPMENT OF THE COMMERCIAL COFFEE INDUSTRY

The first great development of the commercial coffee industry took place in Java and Ceylon, and reached a peak about 1875. When its industry was destroyed by a leaf blight, Ceylon turned to tea; Java, meanwhile, was gradually losing ground to Brazil.

It was the Continental Blockade and the development of the beet-sugar industry in Europe that gave Brazil the initial incentive to shift from sugar-cane production to coffee. Favorable climate, huge tracts of virgin soil, and abundant cheap labor provided ideal conditions for a rapid expansion of the industry. Brazil exported only 13 bags of coffee in 1800, but by 1840 over a million bags were being shipped overseas annually. By the middle of the century, Brazilian production accounted for approximately half the world total. Since then Brazil's output has frequently reached three-quarters of aggregate world production, though in recent years 52-55 percent has been the more common proportion.

Associated with the surplus production problem of the 1930's—

¹ *Coffee Board Study*, p. 31.

and probably of significant longer-run importance—is the fact that during the past few decades methods of producing coffee have generally not kept pace with progress in marketing. Coffee growing and preliminary processing techniques in producing countries do not fully satisfy the requirements of highly organized industries in consuming countries. This contrast is especially noticeable when present-day methods of production in Brazil are compared with the techniques of merchandising and promoting the consumable product in the United States.

The more or less general neglect of necessary organization and science to maintain a healthy industry in producing countries has caused concern to large factors in the United States coffee industry. To protect capital investments some now feel that, despite numerous and serious obstacles, it is necessary to enter the industry at the source of supply as the British did many years ago with tea and cocoa.

It is sometimes said that no important changes have been made in coffee production methods in Brazil over the past 150 years. Most observers agree that: "Methods of cultivation and preparation for the market differ but little from those used 50 years ago when the production of coffee first became a major enterprise."² One competent coffee authority describes the situation in Brazil thus:

Neither the government nor the farmers have availed themselves of recognized technical improvements now in common use in other producing countries. There is no pruning of coffee trees anywhere in Brazil. Four to five coffee seedlings are planted together and permitted to grow into one formation. Only the dead wood is removed. . . . Coffee is grown out in the open and unprotected in any way against the vagaries of the seasons. . . . No scientific fertilization is ever done. . . . Brazilians process their crop upon the conditions of cultivation rather than on the requirements of the consuming markets . . . the system prevents the picking of the cherries when ripe. . . . Nowhere [else] is coffee handled as inadequately and inefficiently.³

Others, observing declining yields, poorer quality, soil erosion, rising costs, government subsidization, and alternative attractions for capital, worry lest their own interests be jeopardized by uncertainty of supply in the amounts and qualities demanded by a mass market upon which millions of dollars have been spent for development.

Only since the early 1930's, after Brazil's difficulties became

² U. S. Tariff Commission, *Agricultural, Pastoral, and Forest Industries in Brazil* (1946), p. 30.

³ Leslie E. Springett in a private report made available to the author. Subsequent citations of Springett herein, without additional reference, are from memoranda, correspondence, or personal interview.

acute, did governmental efforts turn toward studying better methods.⁴ Until then there was no particular incentive toward improvement. Profits were good and markets expanding, and the amount of suitable virgin land seemed inexhaustible. Now, in order to compete, research is encouraged. Experiments are being made with shade, pruning, and the harvesting and processing methods used in most of the technically more advanced mild-producing countries. Despite educational efforts, some financial assistance, and incentives such as the priority accorded washed coffees in shipments, progress in the improvement of production techniques has been very slow.

In contrast to the relative backwardness of Brazilian production methods, the chief market of that country, the United States, leads the world in coffee-marketing techniques. Every effort has been made to control quality and to facilitate the economical flow of coffee from producer to consumer. Some of the large national roasters have set up buying organizations in the producing countries. Equipment has been introduced for better processing and handling of green coffee upon its arrival in the United States. Roasting is now done scientifically and is mechanically controlled, grinding operations give a more uniform product, and packaging is more efficient as are the containers themselves. The United States is the one mass market where coffee consumption is aggressively promoted by all the various devices at the disposal of the advertising specialist. In short, in so far as it is within the power of merchants, given the raw materials available in the world's markets, the consumer receives a better product than ever before.

Despite increasing domination of the United States coffee industry by a relatively few large firms during recent decades,⁵ there is by no means uniformity of brands or blends any more than there is uniformity in consumer tastes. To meet the varied requirements of roasters and distributors, a large number of different kinds of coffee must be imported. Innumerable grades find their way into the blends that are sold under a wide assortment of brand names. In other consuming markets of the world some of the same or different coffees

⁴ Experimental work on developing improved varieties, the fertilizer requirements of different types of soils, and methods for controlling erosion were given some attention.

⁵ Such concentration has meant a decline in the business of coffee importers and jobbers. Nevertheless, these functionaries in the marketing chain have not been eliminated and their services are still required even by the large roasters, who from time to time are obliged to acquire supplementary stocks of certain types of coffee through traditional channels.

may be in demand. The commercially important species, varieties, and types of coffee are briefly considered below.

IMPORTANT SPECIES, VARIETIES, AND TYPES

Coffee belongs to the genus *Coffea*: it is grown in many parts of the tropics, the subtropics, and even on the fringes of the temperate zone. All of the some two dozen species, most of which are found wild, require a warm, moist climate, frost free, with abundant rainfall. *Coffea arabica*, which accounts for the bulk of world production (probably more than 90 percent), is essentially a highland crop, grown at altitudes from 1,500 up to 6,000 feet. It is less able to withstand extremes of climate than more rugged commercially grown species, such as *liberica* and *robusta*.

There are numerous varieties of each species of *Coffea* and their characteristics differ according to where and how grown. Within the *arabica* species, differences among varieties are pronounced. So great are the variations in size of bean, color, and flavor from one locality to another that, as a practical matter, the species of coffee does not tell very much, and further distinctions are necessary.

Of the three species of coffee commercially important, *robusta* and *liberica* are easily distinguished from *arabica*, not only in appearance of tree and bean but also, most important, in flavor. Both were cultivated for the first time in relatively recent decades because of their resistance to diseases and pests. Trees grow much higher than *arabica* (up to 50 feet) and flourish in low, hot country (2,000 feet down to sea level), where *arabica* does not ordinarily thrive. Over 90 percent of the production of Java was *robusta* just before the war. *Robusta* has a rather neutral, flat taste and is used chiefly as a filler. *Liberica* coffee, the demand for which is almost nil in the United States because of its inferior flavor, tends to be a small-holder's crop, especially on the West African coast.⁶ Both *robusta* and *liberica* must compete in the world market with the lower-grade coffees of Brazil.

Coffea arabica is a small evergreen tree or shrub with tough, dark-green, waxy-looking leaves. It is indigenous to Abyssinia or Arabia. Trees when full grown seldom exceed 20 feet in height. They are usually topped and kept under 15 feet for convenience in picking. In Brazil the average height is about 8–12 feet.

Three or four times during the year the trees flower, one flowering

⁶ The berries of *liberica* varieties do not fall from the tree when ripe, and hence may be left for picking when desired. This is an advantage in areas of limited labor supply when extra help for harvesting is not readily available.

usually being more important than the others.⁷ The small and very fragrant white blossoms are impressively beautiful but short-lived. Under favorable conditions coffee trees blossom and bear fruit simultaneously, different parts of the same branch having flowers, green fruit, and ripe fruit at the same time.

The fruit of the coffee tree resembles an ordinary cherry, and assumes a dark-red color as it ripens—about 7–9 months after blossoming, depending on environmental factors. Beneath the skin of the berry is a yellowish pulp in which two seeds are imbedded, the seeds themselves being enclosed in a thin, parchmentlike endocarp. These semitranslucent greenish or bluish seeds are the raw coffee beans of commerce. They tend to be rounded and oval shaped on one side and flat on the other, the flat surfaces of the two beans being laid against each other as the berry grows.

In preparation for market, the coffee berry is processed by drying or pulping so that the beans are freed of their outer covering. After drying, cleaning, and grading, the raw or dark-green colored beans are bagged for shipment overseas to consuming centers. There they are in turn roasted, becoming brown or coffee-colored, usually ground, and packaged for distribution to ultimate consumers.

Although most coffees grown in the Western Hemisphere are *arabica*, the trade makes a broad distinction between coffees produced in Brazil and all other coffees. The commonly used but arbitrary terms “Brazils” and “milds” encompass all coffees grown in Brazil and all coffees grown in other parts of Latin America and the Eastern Hemisphere, regardless of species or variety.

Coffees are also described as “hard,” “soft,” or “strictly soft.” In Brazil the characteristic of “hard” flavor is generally associated with coffees grown in the vicinity of Rio de Janeiro and Victoria, and the “soft” characteristic with coffees grown mostly in São Paulo and exported through the port of Santos. Under less advanced systems of collection and preparation, some “hard” coffees are also produced in areas noted for “soft” coffees.

The soft Santos coffees are generally considered the best grown

⁷ In Brazil the September–October flowerings are most important as the berries mature at the most favorable time for harvesting. The first indication of the size of the next year’s crop usually comes at this time. Harvesting begins the following April or May and is at its height between July and October. Shipments to port begin in July, and the crop or marketing year runs from July 1 to June 30, but the heaviest shipments are usually in December and January. From the grower’s standpoint, it is more logical to think of the crop year as ending with the harvest, but from the trade standpoint the harvest and its subsequent movement to market is the more significant period. To avoid confusion, the marketing year is referred to throughout this study.

in Brazil. As a group, they are the ordinary or medium-quality and medium-priced coffees of world commerce. They are mellow and somewhat sweetish, in contrast with the more acid coffees known as milds. São Paulo coffee, and much of that grown in Minas Geraes, has the soft-flavor characteristic. Coffees shipped from Santos, regardless of their origin, are usually known as Santos coffees, and "Santos coffee" has come to mean, generally, soft coffee.

Of the Santos coffees the best is that known in the trade as "Bourbon." It not only is the best-yielding variety in both new and old growing zones, but is considered to have the greatest utility in blending. Bourbon Santos can be used with most higher-priced milds to reduce the cost of the blend and still impart the characteristic flavor desired by the average consumer.

Of the hard coffees, those produced in Brazil are the low-quality and low-priced coffees of commercial importance. The varieties of *robusta* and *liberica*, which also belong to this group, are grown on a much smaller scale, mainly in the Eastern Hemisphere. Hard Brazilian coffees have a very penetrating flavor. A small proportion of such coffee will alter characteristics most important in demand. The cheaper Rios and Victorias are not much in demand in quality coffee markets or even in mass coffee markets such as the United States.⁸ They have a peculiar, rank flavor and a heavy, harsh taste.

For many years it was held that the harsh, so-called "Rio flavor" was due to peculiarities of soil or climate, but now it has been established that the rank characteristic is merely the result of an easily preventable fermentation. Brazilian and other authorities maintain "that coffee entirely free from 'Rio flavor' has been obtained with the adoption of simple and inexpensive measures designed to prevent such fermentation."⁹

⁸ Such preference as exists for these coffees seems based very largely on price considerations. In 1947 and 1948, for example, Rio 7's sold at only about half the price of Santos 4's. Coffees exported from Rio, Victoria, Bahia, and Pernambuco have a particular clientele especially in the Mediterranean Basin (Morocco, Algeria, Tunisia, Egypt, Turkey, and the Balkans). Something very similar to the "Rio flavor" is also found in coffees grown under less favorable conditions in some of the mild-producing countries.

⁹ Springett explains: ". . . the disagreeable flavor is the result of unsanitary handling of the fruit, together with the system of drying as many coffee cherries on the trees as is possible and, in addition, the mixing of these cherries and the immature fruit with the better quality fruit . . . in some sections . . . heavy dews are experienced during the period when dried cherries are on the trees awaiting picking. The skins of the cherries absorb the moisture and putrefaction and fermentation sets in, resulting in Rio and hard flavored coffee. . . . It is an indisputable fact that if the system and conditions permitted the processing of the whole of the Brazilian crop into washed coffee, it would all be sweet-drinking coffee . . ."

Independent investigations carried out in Costa Rica are said to have confirmed

So-called mild coffees have none of the rankness of Rio coffee; they are distinctly strong and acidic in the desirable sense, usually possess a much finer aroma and appearance, go further in the cup,¹⁰ and bring a better price.¹¹ Of the world's coffee supply, the high-quality portion consists of the mild varieties of *arabica* produced in Colombia and other Central and South American countries, plus the smaller output of Arabian coffee and some of the produce of African colonies such as Kenya. Mild coffees are now the base of all important blends.

Among coffees classed as milds, the variations in characteristics are even more marked than those found among Brazilian coffees. Colombia is the chief producer of high-quality milds, but other countries favored with superior environmental factors, and adhering to efficient processing techniques, produce as fine or finer coffees. Their output, however, is not large and only a small number of coffee brands contain the finest coffees obtainable.¹²

Mild coffees are identified not only by country of growth but also by region within the country or by port of shipment, just as Brazils

that the "Rio flavor" is not due to the nature of the soil, and that it is possible to produce "sweet" coffees in regions hitherto well known for harsh coffees. W. Bally, "Recent Efforts for the Improvement of Brazilian Coffee," *International Review of Agriculture*, January 1937, XXVIII, 17, 20 T. One of the largest coffee distributors in the United States sent a mission to Brazil a few years ago to experiment with the processing of Rio coffees. The results from using modern methods were highly favorable, but apparently little progress has been made in introducing such methods in the areas where needed.

¹⁰ Compared with Santos coffee, for example, good-grade Colombians not only give more strength, better flavor and aroma in the cup, but produce about a fourth more liquor. The caffeine content is very high, always higher than that of other coffees, and varies from 1.12 percent in Boyacas to 3 percent in Medellins. International Institute of Agriculture, *Coffee in 1931 and 1932* (Rome, 1934), p. 138. Altitude seems to be the all-important factor in *liquoring* value. Coffees grown at 3,500 feet and up contain more of the flavor known in the trade as "acidity" than those grown at lower levels.

¹¹ Considerably more than half of Brazil's coffee production falls into the "ordinary" class, but a small part compares with growths produced in other countries whose coffees are classed as mild.

¹² For a long time Mocha coffee (Arabia) was regarded as best, but very little was available. The British regard certain coffees from their colonies as the best obtainable. Some coffee interests in the United States consider high-altitude growths from Costa Rica or Guatemala to be the best, while others prefer the Medellins of Colombia or the local produce of other countries when available commercially. Most Latin Americans consider particular coffees grown in their own countries as superior to all others. But the output of many countries classed as producers of milds is not highly regarded in foreign markets, though the supply available for export is usually so small that a market somewhere in the world is readily found in normal times. Some coffees, like Mocha or Kona (Hawaii) command premium prices partly because of their limited supply and "romance appeal."

are similarly identified. Thus, for example, Colombian coffees are known as "Medellíns," "Manizales," "Bogotá," "Bucaramangas," and so on. The type name here is also indicative of a quality ranking. In other cases involving smaller countries, some kind of a grading system tends to displace regional designations, and coffees may be known by the country of production plus specifications such as "high-grown," "washed," "naturals," or "hard-bean." However, the most important coffees in world commerce are identified both by region and by grade. The coffee trade thus concerns itself not only with a great number of different kinds¹³ of coffee but with a far greater number of grades.

REQUIREMENTS OF THE COFFEE TREE

In the long history of coffee growing enough experience has been gained to produce a fairly general consensus as to the climatic, topographic, soil, and other natural conditions essential to successful culture. Specialists may disagree upon numerous details but all concede that the plant flourishes under a rather wide range of conditions.

Coffee can be grown in the Western Hemisphere between Northern Mexico and Southern Brazil, but most of the world's 6 billion or so trees are found within a belt about 24°–25° on either side of the Equator. So many regions between 25° N. and 30° S. latitude possess the requisite conditions of heat, humidity, and rainfall, as well as rich, well-drained soil, that there appears to be abundant scope for expansion of the world coffee output whenever conditions warrant. In modern times there has usually been relatively little competition between coffee and other crops for use of the land, coffee generally having been more remunerative than alternative crops that conceivably could be grown on soils suitable for coffee culture.

Rainfall.—Coffee is grown in parts of Brazil with as little as 40 inches of rain annually—a very small amount in view of the porous nature of the soil. However, distribution of rainfall, the most important consideration, is about ideal. In other parts of the world, coffee is grown with as much as 120 inches of rain. Generous, regular rain, followed by a strong sun, is desirable while the berries are maturing. At harvest time, and thereafter during preparation for market, dry weather is best. Average annual rainfall in the principal coffee-growing regions of Brazil is about 59 inches; in Central America it is somewhat higher (about 70 inches).

¹³ See W. H. Ukers, *All About Coffee* (New York, 1935), pp. 212–32, for a listing of the principal kinds of coffee grown in the world together with their trade values and cup characteristics.

Temperature.—Most coffee is grown where the annual average temperature is between 63° F. and 77° F., but the ideal range is narrower, as close to 68° F. as possible. Temperatures as low as 59° F. and as high as 86° F. are not prohibitive but do not permit the best development of the berries. *Coffea arabica* is tolerant neither of frost nor of drought. Frost “scares” are a common occurrence in Brazil, especially in São Paulo, southern Minas Geraes, and Paraná, but apparently only in a few years has damage to the trees been really severe. The worst frost since 1918 occurred in 1940. Comparatively rare though they are, cold winds and frosts lasting only a few hours have had an important influence on the fortunes of the coffee industry in Brazil, and on the world coffee situation.

Soil.—The coffee tree makes exacting demands upon the soil yet it is impossible to generalize on soil requirements. A deep, porous, and permeable soil, with a rich mixture of disintegrated volcanic rock and decomposed mold, appears most nearly to satisfy the plant’s requirements. In Brazil, best results have been obtained from growths on the reddish, clayey soils of volcanic origin such as *terra roxa* and *massapé*. These soils, however, have been largely planted and are now being rapidly depleted. In the newer coffee regions sandy loam soils, which are less productive, are being used since the reconditioning of clay loam and loam soils has not thus far been considered economic by Brazilian growers. Some of the best coffee lands of Colombia, Central America, Mexico, Java, and Sumatra are found in regions with rich loamy soils of volcanic origin.

Rich, moist soil produces a large yield but no quality. Dry uplands produce better quality but inferior style and small berries. Coffee grown on lower ground, even at almost sea level, often has good appearance, with larger and more regularly formed berries. Such coffee is often of good strength, but very lacking in flavor and aroma, and will not class as high grade. Higher ground, that from three to five thousand feet, usually produces high grade coffees, such ground being usually table lands or “benches,” and sometimes steep mountain slopes.¹⁴

Shade.—Shading for coffee (as well as for cocoa and tea) has been debated by experts for many years, and there are still variations in practice in different growing regions of the world.¹⁵ It seems

¹⁴ F. N. Foot, *Coffee the Beverage* (New York, 1925), p. 48.

¹⁵ One authority who makes a strong case for shade, at least in one part of the world, states, “It is not too much to say that the success of a coffee planter in South India rests on his management of shade.” See W. W. Mayne, “Coffee Planting in South India: An Example of Conservation Agriculture in the Tropics,” *Tropical Agriculture* (Trinidad, B.W.I.), April-June 1947, XXIV, 55. Expert opinion long

generally agreed that shading is desirable for protecting trees from the full intensity of the sun and for its influence on soil conservation. Even though yield *per tree* may be "somewhat" higher for unshaded than for shaded coffee,¹⁶ it is undeniable that coffee grown with shade tends to be superior, whether for this reason or for a combination of circumstances and cultural practices usually found together.

Permanent shading is practiced in many tropical regions, especially at the lower altitudes. The most important exception is found in Brazil where only in recent years have experiments with shade been undertaken. In the state of São Paulo the average elevation of the coffee districts is between 1,500 and 3,000 feet above sea level and shading has not been considered necessary. In contrast, the coffee regions of mild-producing Colombia are found in altitudes between 3,000 and 6,500 feet. Shading is customary except at the high altitudes, the guamá and several types of acacia trees commonly being used for this purpose.

Other conditions. — Rolling, hilly, and mountainous lands are preferred¹⁷ to valleys as sites for plantations, for they avoid too much sun exposure, offer protection against frosts and winds, and facilitate drainage. Most valleys are not properly drained for coffee, but it is an advantage to have farm buildings located there in order to be near water. Abundant water is necessary for the wet method of removing the coffee beans from the harvested berries. Shelters or wind-breaks must be provided in many areas to protect the trees during the blossoming and maturing period.

MARKED CONTRASTS IN CULTURAL PRACTICES

Although some progress has been made in preparing coffee for market, coffee growing itself has not been influenced in any spectacular fashion by the progress of agricultural science. Yields of coffee, unlike those of rubber, sugar, tea, and some other plantation crops, have not increased appreciably as the result of improvement

held that shade was primarily desirable to break the intensity of the sun. Investigations are being made with cocoa, almost always shaded, to determine effects on soil (see Chapter 13).

¹⁶ H. W. Spielman, "Brazilian Coffee Goes to Market," *Agriculture in the Americas* (U.S. Dept. Agr., Office of Foreign Agricultural Relations), May 1945, V, 85.

¹⁷ In the Brazilian states of São Paulo and Paraná, which together account for over half the coffee trees of Brazil, about 20 percent of the coffee lands are found on steep slopes, about 20 percent on little slope or level, and about 60 percent on slight slope (5-15%). In other states, however, about 85 percent of coffee is on land with steep slope (15% or more).

in varieties by selection and breeding, or by better cultural techniques.¹⁸

According to the Coffee Board's study (p. 17), producers generally hold "that the art of coffee cultivation has been laboriously perfected through the decades and that many of the technical improvements in cultural practices cannot be economically applied to coffee production." Actually, it seems that in times of prosperity proposed improvements are rejected as unnecessary, while in times of depression they are rejected because of their cost.¹⁹

Despite broad similarities in cultivation practices throughout the coffee-growing areas of the world, the differences in details often have a marked bearing on the quality of coffee produced. Contrasts are of three general types: (1) differences in requirements of the various species of *Coffea* that give rise to varied methods, (2) environmental, economic, and other factors that for one reason or another have governed the development of the industry in areas growing the same species (*arabica*), and (3) differences in practices found in old *vs.* newer growing areas, usually within the same country, e.g., Brazil.

The second type of contrasts is of most commercial importance, although the first may be more marked. Probably the differences in methods involved in growing different species of coffee are greater than are found in scattered areas growing different varieties of the same species. *Robusta* cultivation, for example, differs from *arabica* in methods of spacing, shading, pruning, picking, and so on, since the trees grow much taller. As noted earlier, *robusta* is also more disease resistant, and therefore its cultivation entails fewer measures to cope with a problem that growers must face in many places where *arabica* is planted. Contrasts between old and newer growing areas are significant mostly in a localized sense and are of less immediate interest for present purposes.

Whatever the environmental, economic, or other factors responsible originally, there can be no question that the different methods employed in growing *arabica* produce different results, and these are reflected in cupping qualities. The mild *arabica* coffees produced outside Brazil tend to be high grown (3,000–6,000 feet), shaded, harvested only when cherries are mature, and washed. In general,

¹⁸ A convenient guide to the scientific and technical literature on coffee may be found in J. C. Crane and Laurenz Greene, *Abstracts of Some of the Literature Pertaining to Coffee* (U.S. Dept. Agr., Office of Foreign Agricultural Relations, 1948). The references are classified under seven headings: soils and nutrition, varieties and breeding, shade, propagation, pruning, flowers and fruiting, and general information.

¹⁹ Some of the problems of coffee production and potentialities for improving cultural methods are considered in Chapter 18.

crops produced at the higher altitudes and prepared for market by the "wet" method (described later in this chapter) have the best quality. Colombian coffees now are all washed, whereas Brazilian coffees are still mostly unwashed, i.e., prepared for market by the "dry" method. Similar but less striking contrasts are to be found within the smaller producing countries or colonies.

Within broad regions in Central America, East Africa, and Brazil cultivation practices tend to be quite similar, differing mostly in detail. As between Brazil and other regions producing mild coffees of the same species, however, differences are marked. Shading, pruning, and manuring are all more common outside Brazil than within. Methods of planting, spacing, and harvesting, as well as preparation for market, are different. Qualities that importers and roasters seek in coffees are linked with the cultural practices employed in the growing areas.

Propagation and planting.—Coffee is usually grown from seed, but on some newer plantations propagation by shoots or cuttings from mature trees is now being tried.²⁰ In few places are special efforts made to select seed from high-yielding trees; usually the largest ripe cherries from trees 8–10 years old are used. Seed is relatively cheap, and many growers, considering it more economical to thin than to replant, are generous in the use of seed. This applies especially to planting "at stake," i.e., in the position the trees are to occupy permanently.

Planting at stake is the common method in Brazil, and planting in seedbeds for later transplanting is the more common practice in Colombia and Central American countries. In the direct planting method of Brazil a handful of seeds (10–20) is tossed into each hole. These may be anywhere from 8 to 15 feet apart, the distance depending on the fertility of the soil and current ideas about planting. After germination, and when the seedlings are 3 or 4 months old, usually all but the strongest plants are thinned out. The remaining plants (2 to 8) constitute a "hill," which, for statistical purposes, is counted as one coffee tree.²¹

When seeds are sown in a seedbed, the seedlings are transplanted

²⁰ Results of experiments with propagation of coffee by cuttings in order to obtain high-yielding or disease-resistant strains have often been discouraging. Satisfactory results have been obtained, however, under certain conditions. See J. Guiscaf r -Arrillaga. "The Propagation of Coffee (*Coffea arabica* L.) by Cuttings," *Proceedings of the American Society for Horticultural Science*, Vol. 48, 1946.

²¹ Such is the practice in S o Paulo. In Brazil 3 to 6 trees to a hole are "no rarity." In the old coffee zones very little thinning is done, but in the newer zones current practice seems to be to leave about 4 plants to a hole.

to a nursery after they are about 2 months old, where they are allowed to grow a year or two, or until they are 1 to 2 feet high, before final transplanting to the plantation or *finca*. Contrary to the Brazilian practice of allowing a clump of trees to grow in one hill, in many of the mild-producing countries where transplanting is common, only a single tree is set out to each hole. Spacing likewise varies, partly because shade trees are characteristic of the system in these countries and pruning to keep trees smaller is more generally practiced.

Spacing, shading, and interplanting. — Whether planted in the position they are to occupy as producing trees or in seedbeds for later transplanting, shading is necessary for the young plants. In some places catch crops are interplanted to provide the necessary shade for the first few years of growth and to provide the farmer with additional food or income, but they tend to deplete the soil and generally are discouraged. However, during periods of depression or when waiting for trees to mature or to recover from frost damage, tenants and unemployed laborers are sometimes forced to resort to interplanting.²²

Bananas are often used for shading the very young plants in mild-producing countries, but with the Brazilian method, sticks and twigs protect the individual hills of trees, and interplanting tends to be for revenue rather than for shade. Such crops as rice, beans, corn, and cotton have been interplanted in Brazil during recent years, especially during the first four years after planting, while trees are reaching maturity and during the course of the contract for setting out new groves.

Apparently ideas about spacing coffee trees differ widely. From such evidence as is available it appears that roughly twice as many trees are planted per acre in the mild-producing countries as in Brazil, where permanent shading is not part of the system. Spacing trees about 12 feet apart is considered satisfactory in Brazil, giving around 300 trees to the acre. In Central American countries, 500 to 600 trees per acre seems common.²³ In fact, in Puerto Rico where experts of the Soil Conservation Service of the U.S. Department of

²² This occurred in Brazil in the early 1930's on a considerable scale and again in the early 1940's as a result of frost damage, especially in São Paulo and Paraná where cotton and other crops were planted in order to assure some income until the trees had recovered. For a brief description of fazenda life in Brazil and the movement of coffee from the planting of the trees until it is exported, see Spielman, *op. cit.*, pp. 83-85, 95.

²³ In El Salvador, for example, "a grower figures on about 1,000 trees to the *manzana* (1.726 acres)" or approximately 580 to the acre. J. C. Crane, "Coffee Is Gold for El Salvador," *Agriculture in the Americas*, April-May 1947, VII, 72. This article (pp. 69-72) gives a brief but detailed description of cultivation methods in a typical Central American coffee-producing country.

Agriculture have been assisting the local industry, old plantations have been thinned to 600 trees to an acre.²⁴ Springett states that the method of spacing used in Brazil "permits only 331 trees per acre, thus taking up approximately 100 percent more acreage than is necessary and scientifically recognized."

Permanent shading is general in the mild-producing countries. Shading protects the trees from wind and sun and may have some influence on soil conditions. There is no rule about the number and spacing of shade trees inasmuch as the type of tree employed for this purpose varies. In El Salvador, where several leguminous trees are used, spacing is such that each acre of coffee land also carries about 174 shade trees.²⁵ In some areas natural forest is managed so as to provide permanent shade; in other places rapidly growing trees are planted and replaced periodically.

Because of the difficulties involved, especially the time required to secure conclusive results, very little experimental work has been done with shade-grown coffee, tea, or cocoa. Opinions and arguments for and against shading are, in general, the same for all three crops. Advocates of shading have a strong over-all point in the better quality usually secured and the higher prices normally obtainable for better quality. However, prices must be related to costs. (See Chapter 18 for additional discussion.)

Life cycle of trees and yields.—Coffee trees begin to bear within 3 to 5 years from seed, but do not produce in commercial quantities until about the sixth to eighth year. When planted on rich virgin soil the bearing period comes earlier and good yields may be obtained over a 15-to-18-year period. With some exceptions, the productivity of the tree then begins to decline, and crops usually become unprofitable a decade or more before the close of the tree's 30-to-40-year productive cycle.

Yields per tree may vary widely depending upon variety, age, type of soil, cultural practices, weather, and similar factors discussed elsewhere. A yield of 1 to 1½ pounds of clean green coffee beans per tree per season is generally expected and is considered a good average.²⁶ In Brazil yields have gradually declined as coffee growing has migrated to poorer soils, so that now the average amount of

²⁴ E. A. Telford, "Saving Puerto Rican Coffee Soil," *Agriculture in the Americas*, August 1946, VI, 121.

²⁵ Crane, *op. cit.*, p. 72.

²⁶ Descriptive literature sponsored and published by the Pan-American Coffee Bureau gives these relationships on *average* production per tree: 10 pounds of cherry = 2 pounds (clean) green coffee = 1.68 pounds roasted coffee.

cleaned coffee produced per tree runs a little over 1 pound, but individual hills (4 trees or more) sometimes yield as much as 12 pounds.

Pruning, weeding, and harvesting.—If allowed to grow without pruning, coffee trees might attain a height of around 40 feet, but usually they are topped and kept within range of about 8–15 feet.²⁷ Topping increases the bearing of the lateral branches which produce most of the flowers and fruit, and also keeps the trees down within reach of pickers. Pruning is likewise considered desirable to conserve the strength of the tree for producing coffee rather than for growing wood.²⁸ However, there are no fixed rules about pruning, since so much depends upon environmental factors.

Central American coffee-producing countries are probably more advanced in the knowledge and value of pruning than others. Except for the elimination of useless sprouts and dead wood, pruning is practically unknown in Brazil. Failure to prune in common practice is another reason given for the relative lower yields per acre obtained than in the mild-producing countries, and is, of course, related to spacing.

Aside from annual pruning in countries where pruning is done at all, cultivation may be limited to weeding, usually with a heavy hoe, 3 or 4 times a year. This system of clean culture, common in most coffee-growing countries, has been questioned in recent years and now there is some tendency to abandon it in the interests of preserving soil fertility and of preventing erosion.

Brazil's huge annual crop of coffee is harvested only once when most of the cherries are ripe, whereas in the mild-producing countries there may be 2 to 4 pickings during the harvesting season. The Brazilian method involves complete stripping of the trees in one operation; the alternative method common outside of Brazil is to

²⁷ Species, age, climate, soil conditions, and various other factors affect growth. In Brazil coffee trees reach a height of 12–18 feet in about 25 years, which is maintained for another 15 to 25 years if the trees are properly cared for, but if not they gradually become smaller until at the end of 30 to 40 years they are only 6 to 8 feet high. Spielman, *op. cit.*, pp. 84–85.

²⁸ A number of systems of regular annual pruning are employed, representing different ideas as to the most profitable practices under given climatic and other conditions. Perhaps the three most common are the single-stem system (Kenya), the *Agobiada* (plants are bent over and pegged down when the tree is about one year old), and the multiple-stem (Costa Rica). On pruning practices, methods, and results, see Crane and Greene, *op. cit.*, pp. 62–71, and International Institute of Agriculture, *op. cit.*, pp. 167 ff.

In East Africa experiments have demonstrated that yields can be increased 75 percent by using multiple-stem pruning instead of single, and at lower cost since less skilled labor can be used. See S. M. Gilbert, "Coffee—An Export Staple of East Africa," *World Crops*, December 1949, I, 152–54.

pluck only the ripe cherries as they mature.²⁹ In Brazil cherries of varying degrees of maturity, twigs, trash, and dirt are all swept up after the branches have been stripped. When coffee prices are high, more care is taken and canvas is spread on the ground around the trees.³⁰ In Colombia and other Central American countries, pickers collect the hand-selected ripe cherries and gather them in baskets, relatively free of foreign matter.

A good coffee picker gathers about 200 pounds of cherries a day but perhaps an average or fair day's pick under favorable conditions is around 100 to 125 pounds of cherries. About 5 to 5½ pounds of cherries are needed to yield 1 pound of green coffee beans; hence the average daily pick per worker, in terms of roasted coffee, is about 17-21 pounds, another weight loss being experienced in roasting.

Use of fertilizers.—The extent of hoeing, plowing, fertilizing, and similar cultural practices depends not only upon local needs and ideas but upon the availability and cost of labor, equipment, and fertilizers. There are wide differences of opinion on the appropriate choice and use of manures, not only within but among the various coffee-producing countries.

When trees have been planted on virgin soil, little fertilizer is employed until they begin to bear. As coffee trees grow older, more potash, nitrogen, and phosphoric acid are taken from the soil and the greater is the need for restoring these elements by the use of natural or commercial fertilizers. Decomposed weeds, leaves, and prunings, leguminous plants, pulp from coffee cleaning, natural manures, wood ashes, bone and fish meal, oil cake, and commercial fertilizers are all used. Chemical fertilizers are gradually being introduced, but in most coffee-growing regions manuring is limited to the use of organic matter of animal or plant origin. Government agronomists in Colombia favor the use of coffee pulp, which is otherwise wasted and presents a problem of disposal.³¹ Coffee pulp is also used for manuring in Brazil and Java.

²⁹ For details of coffee harvest seasons and their duration, see Mary S. Coiner, "The Coffee-Harvest Timetable in Latin America," *Foreign Agriculture*, May 1948, XII, 96-97; and Departamento do Cafe, *Anuário Estatístico do Cafe, 1939/40*, p. 13.

³⁰ Spielman, *op. cit.*, p. 85.

³¹ A press release of the U.S. Dept. of Agriculture (Nov. 3, 1947) states that tests had established the feed value of coffee pulp. "A corn-substitute cattle feed for milk production has been developed from the waste pulp of the coffee bean through the cooperative effort of agricultural technicians of the U.S. and El Salvador. . . . The discovery is considered important to the economy of the coffee-producing countries of the Americas . . . if all the available coffee pulp of . . . the Western Hemisphere were converted into feed, it would have a feed value equivalent to 34,000,000 bu. of corn."

Pests and diseases.—Different parts of the coffee tree are attacked by a variety of pests and diseases, the most annoying and destructive being insects and fungi. Probably none inflicts as much damage as the coffee-bean borer (*Stephanoderes*), found in Africa, Brazil, and Java as well as elsewhere. The fungus disease known as Ceylon-leaf is more famous, being commonly credited with the destruction of the coffee industry in that country, India, and most of Java and other southeastern Asiatic coffee-growing countries during the latter part of the last century.³² Although the borers are the most destructive of the insects, others attack the leaves (e.g., the *Sauva* ant) or the roots (e.g., the balm cricket), and cause considerable damage. Except for *Sphaerostilbe flavida*, which may be as damaging as Ceylon-leaf, the Western Hemisphere is relatively free from serious damage from other fungoid diseases. Sometimes rats, birds, squirrels, elephants, buffalo, and native cattle become destructive pests in various parts of the world.

The coffee-bean borer leaves a residue in the holes of the beans that is damaging to flavor. An internal-feeding insect, the borer is believed to exist in the Western Hemisphere only in Brazil, where it was introduced several decades ago but did not cause serious alarm until the mid-1920's.³³ A government campaign of eradication was undertaken against this so-called "coffee plague," but after four years it was concluded that complete eradication was impossible and responsibility for controlling the pest was returned to individual growers. Following the drought of 1944 reinfestation occurred, most severely in the state of São Paulo.

Reports from Brazil that the prevalence of the insect was a "national disaster" and a serious threat to the entire Brazilian coffee industry have been termed "exaggerations" by competent observers. The infestation of recent years, reflecting a relaxation of strict methods of control and general wartime neglect of trees, "is perhaps the most severe on record; at least it is the most widespread," surveys

³² This disease, *Hemileia vastatrix*, first appeared in Ceylon in 1869, but some authorities discount the idea that it was the sole reason for the ruin of the coffee industry there, in Java, and elsewhere. J. H. McDonald (*Coffee Growing with Special Reference to East Africa*, London, 1930, pp. 7-22), for example, states that the real reasons were financial stringency, bad cultivation, ignorance, and planters' neglect of scientific investigation. Describing the Ceylon-leaf disease as "the malaria of coffee," McDonald holds that it should lose its terror if common sense is applied and adequate control measures employed. This book contains two chapters on fungus diseases and insect pests to which the reader desiring specific and descriptive material is referred.

³³ Known locally as the "Broca," this pest in the late 1940's was reported as being most prevalent in central São Paulo, Minas Geraes, Espírito Santo, and Paraná.

indicating that in 1947, for example, the average degree of infestation in the state of São Paulo was 10.4 percent.³⁴ Although the Biological Institute of São Paulo and others expected the infestation to become somewhat heavier, apparently it was smaller and under control toward the close of the decade.

INFLUENCE OF METHODS OF PREPARATION ON QUALITY

Despite the wide range of characteristics found within different varieties of the *arabica* species in various growing areas of the world, there is apparently no reason why the range in cupping qualities should be so wide. Granting that rainfall, soil, altitude and similar environmental factors account for much of the ultimate flavor differences in coffees, equally important are the methods of cultivation and preparation for market. Many authorities maintain that there is no fundamental difference in the inherent qualities of *arabica* coffees, that it is merely a matter of developing these qualities. Some contend that Brazilian coffees could be prepared for the market to compete successfully with the milds of many countries where coffee enjoys no more favorable environmental conditions but is cultivated and processed in a different manner.³⁵

Coffee grown in a favorable environment and cultivated diligently may lose much of its inherent value through poor preparation. This is recognized in the trade by the price differentials that prevail between "washed" and "unwashed" or "natural" coffees, according to whether they are prepared by the so-called "wet" or "dry" method.

Preparation for market. — Although some small difference of opinion may still exist as to which method of preparation produces the best coffee, the market as reflected by the bulk of trade demand, definitely favors washed coffees prepared by the "wet" method. All coffee was once prepared by natural drying, and this is still the common method in Brazil and in countries or places where the water supply is inadequate. Given several weeks of uninterruptedly clear, warm weather, the advantage of the dry method is that berries of different degrees of ripeness can be handled at the same time, but in different lots. This is an important consideration in Brazil, where

³⁴ O. K. Moore, *The Coffee-Bean Borer in the State of São Paulo* (American Consulate General, São Paulo, Brazil, Mar. 5, 1948, No. 23), pp. 1-2. Until this time total damage from the coffee borer was thought probably never to have exceeded five percent of production for Brazil as a whole.

³⁵ L. E. Springett, *Quality Coffee* (New York, 1935), p. 89. In 1946 the same authority estimated that some 44 percent of Latin-American coffee production was "other than best quality." Brazilian coffee accounted for 90 percent of the total.

harvesting is ordinarily done by the fast, cheap method of stripping the whole tree regardless of the maturity of the berries. It is not vital, however, in countries like Colombia, where only the ripe berries are picked at one time. When the dry method is employed, mixed lots of overripe, ripe, and green berries are usually segregated for separate treatment by dumping them into a tank of water and then drawing off each kind at different levels. This preliminary operation also separates out much of the foreign matter and defective beans (floats)³⁶ mixed with the lot of coffee as harvested.

Preparation of coffee by the wet process requires special equipment and an ample supply of water. Cleaning establishments (*beneficios*) are commonly located on streams where falling water is available for power. Plantations usually possess the financial resources for the rather extensive equipment needed, but the small grower must depend upon others, or resort to the sun-drying method. Now, with better transportation facilities, small planters sell their coffee in the cherry to the large *beneficios*. This accounts for the great increase in the production of washed coffees.

Pulping, fermenting, washing, and drying are the stages in the wet process prior to hulling or milling. Fermentation is probably the most critical step and has the most important influence on flavor. First, from the ripe berries as soon after picking as possible, most of the outer pulp is removed by a pulping machine, and the remainder loosened by the rubbing action of its rotating disks or cylinders. The berries are then fed through a water channel for additional cleaning and run into tanks, where they are drained to a semidry condition for fermentation.

Fermentation must be controlled so that it is wholly alcoholic and not acetic (vinegar-producing); otherwise, color of the beans and quality are adversely affected by the acid action. Care must therefore be exercised to wash off every trace of the mucilaginous substance at the proper time. The berries are then spread out on drying floors or trays, and stirred frequently until dry, or are artificially heated until the parchment skin can be removed by hulling or peeling.

Sun drying is rapidly disappearing because in the long run it is uncertain and uneconomic. About 40 percent of the moisture content of well-drained parchment coffee must be evaporated. Weather cannot be counted upon, considerable space for drying and labor for

³⁶ "Floats" are unmaturing fruit often containing one sound bean and one that never developed. When not separated out before processing they become "black beans" in grading.

turning and spreading the beans are needed, the time required for the process is variable, and in the end it is difficult to produce a uniform product. Mechanical driers overcome most of these disadvantages, and, though less picturesque, speed drying to something like 24–36 hours from a week or two.

Milling is necessary regardless of the process used in preparing coffee up to the stage of hulling. Except for advances in the type of motive power used, there has been little change in milling equipment over many years. Hulling and polishing machines remove the parchment and “silver skin” by abrasive action. This is done either on the plantation, at the port of export, or sometimes in the country of consumption.³⁷

Coffee grading. — After hulling, the green-colored beans are graded for size by means of sieves or screens, and then hand sorted for removal of defective or discolored beans. The care with which grading is done has much bearing on the price the coffee will bring in the market. Better and more uniform roasting results when beans of the same size are handled together, hence buyers are willing to pay for size and shape classification as well as for liquoring quality.

Much progress has been made over the years in grading; yet the criteria for grading have been little changed. It is impossible to evaluate cup or drinking quality by any mechanical grading system, but grading is an essential first step. Before the introduction of cup-testing methods, grading had more influence in establishing prices than it has today.

Coffee-grading systems differ appreciably from one producing country to another both in method and in effectiveness, but their objective is always the same: to facilitate marketing and thereby enhance the growers' financial return. In Brazil, grade is determined by the number of imperfections in an average sample of given weight. The grades run from 1 to 8 or 9. The No. 1 grade implies perfection, and is not found in commerce. The best grade purchasable is No. 2, while the average grade of coffees harvested in São Paulo is No. 5.³⁸ The black bean commonly found in green coffees has been chosen arbitrarily as a standard for expressing other imperfections. For ex-

³⁷ The advantage of final treatment at the import market is the freshly cleaned appearance imparted to the beans, but offsetting this is the additional shipping weight and expense involved. Springett sees little justification for shipping “in the parchment.” Bag, freight, and handling costs are increased (weight is reduced 20 percent by removal of parchment and silver skin) and not all consuming countries are equipped for cleaning. Springett, *op. cit.*, p. 131. All coffee arriving in the United States is now without parchment.

³⁸ The No. 2 grade allows for 4 imperfections per 2/3 pound; the No. 5 for 46.

ample, one defect (or one black bean) is equal to five broken beans, two "floaters," three shells, one husk, or one average-sized stone. In other countries grading systems may be either more or less elaborate.

Transportation and storage.— From interior growing centers, green coffee is placed in export bags and transported by muleback, boat, train, or truck to the nearest shipping port. There it is rebagged, marked with the correct grade, and stored in warehouses to await loading and shipment overseas. Sometimes final cleaning, polishing, and grading, as well as resacking, are done at the port of shipment. Because of distances both within the growing country and to ultimate consuming markets, freight costs ordinarily loom large in green coffee costs.

The condition of coffee upon arrival at its foreign destination depends largely upon proper stowing aboard ship. Because it is liable to sweating, care must be taken that no metal touches the bags. Ample air circulation during the voyage is necessary to assure dryness of the cargo.

If the coffee becomes wet, it must be given special treatment at the receiving port. This adds to the cost of handling and necessitates selling on a "distress" basis. No particular difficulty is encountered on the typical voyage from Brazil or Colombia to New York until the ship leaves the warm Gulf Stream about three days from its destination. The sudden drop in temperature after many days of warm weather and water may cause excessive sweating between decks.

Coffee is usually packed for overseas shipment in new jute bags. The filled bag varies in weight from country to country and sometimes within the country. Brazilian coffee is shipped in bags of 60 kilograms net, or approximately 132 pounds,³⁹ and Colombian coffee is shipped in bags of 70 kilograms or about 154 pounds. In other countries the shipping unit is more commonly around 145–150 pounds.⁴⁰ When statistics of production or trade are presented in terms of bags,

³⁹ For many years this approximate figure was used by the trade and government agencies in statistical compilations. In the operation of the Inter-American Coffee Agreement, however, more accuracy was desirable; hence a presidential executive order in 1941 established official conversion factors for use in administering quotas on United States imports. One bag of 60 kilograms of coffee thereafter was considered equal to its exact equivalent in pounds, or 132.276. By adoption of this conversion rate, 33,176 more bags were permitted entry into the United States under the basic quota (see pp. 94–95).

⁴⁰ At a meeting of the Coffee Growers Federation of Central America and Mexico, held in March 1949, it was decided to recommend a change to the 60-kilogram bag as standard, beginning with the crop year 1950/51. The Salvadoran Coffee Association, which had been using a 69-kilogram bag for many years, decided to make the change in 1949/50.

however, it is customary to use the Brazilian 60-kilogram bag as the standard unit. Data expressed otherwise are converted.

The bulk of the export business in the principal coffee-producing countries tends to be concentrated in the hands of relatively few firms. Eight of the 45 export houses in Santos, for example, handle more than half of all the coffee exported from Brazil, while 4 of the 5 largest are United States firms.⁴¹

At the receiving port, newly arrived green coffee goes into jobbers' or roasters' warehouses to await distribution to outlying markets where it is roasted, ground, and packaged for sale to the ultimate consumer. The chief coffee-receiving ports and trading centers of the world are New York, New Orleans, and San Francisco in the United States; and since the war, Le Havre and Antwerp in Europe.

Roasting and packaging.—Roasting involves simply the application of heat to the green beans, which are turned constantly in a revolving container until they turn the desired color of brown. Roasting is nevertheless a highly specialized skill. In the process green coffee loses around 18 percent of its weight, but increases in bulk by 30–50 percent.⁴² The roasting time varies with the kind and condition of the green beans. Since most coffees purchased by consumers are blends, this means that each constituent of the formula must be processed in just the right manner in order to maintain the overall character of the blend. Most roasted coffee sold in the United States is ground and then packaged in vacuum tins, glass, or paper bags, but some is sold in the roasted-bean form or ground and packaged at the time of sale.⁴³

COFFEE CHARACTERISTICS AND STORAGE PROBLEMS

Under favorable conditions green coffee may be stored for several years without appreciable deterioration. This is unquestionably a distinct advantage in regulating the flow of marketings. "Favorable conditions" have been variously defined;⁴⁴ coffee is not particularly

⁴¹ Spielman, *op. cit.*, p. 95.

⁴² For purposes of administration of the Inter-American Coffee Agreement, 1.2 pounds of green coffee were considered the equivalent of 1 pound of roasted coffee. This implies an average shrinkage of 16 2/3 percent.

⁴³ Divergent practices in merchandising coffee are discussed in connection with the demand for coffee in Chapter 17.

⁴⁴ A War Department technical manual gives the approximate keeping period of green coffee at 3–5 years, depending upon temperature, humidity, and physical storage arrangements. Specifically, it defines dangerous storage conditions when relative humidity is above 60 percent. At 55–60 percent humidity, approximate keeping

subject to deterioration because of temperatures but is especially vulnerable to humid conditions. For this reason storage in the country of production is far less satisfactory than in temperate-zone consuming markets. While storage of many tropical products is hazardous in producing centers, both because of weather and inadequate storage facilities, it is especially so with a commodity like coffee where, without flavor and aroma, the valuable properties disappear entirely.

Statements are frequently made that green coffee can be stored indefinitely.⁴⁵ Technically, this may be true under certain conditions, but as a practical matter such statements have little meaning. Long storage of green coffee affects first the color of the beans and later the flavor. Even if loss of color is not considered important, flavor deterioration sets in after a few years. Initially, however, flavor may be improved, especially the flavor of harsh coffees.

The coffee trade has its own ideas on how long coffee can be held in satisfactory marketable condition. The average coffee merchant links these ideas with market conditions, i. e., the size and quality of new-crop coffee vs. old. Though variable from time to time and from one segment of the trade to another, such ideas never encompass "indefinite" storage. With government agencies engaged in control schemes it is another matter.⁴⁶

Although some buyers will not handle coffee held over from previous seasons, there are markets willing to take such coffee at small price concessions. Generalizations are undoubtedly dangerous inasmuch as conditions of storage vary appreciably, and much also depends upon the manner in which the coffee has been prepared for market. Distributors who pack in cans find old coffee rubbery and more bulky, thereby making it more difficult to fill their cans to full

time of green coffee at 90° F. is given as 3-4 years; at 70° F., 4 years; and at 40° F., 5 years. Coffee easily absorbs contaminating odors and signs of deterioration in storage are indicated by off odors, off flavors, mold, insect infestation, cut bags, and swollen, pitty, or woody beans. (U.S. War Dept., *Storage of Quartermaster Supplies* [Technical Manual 10-250, March 1946], p. 64.) Of course, most private business interests are not in a position to handle coffee as the United States Army did during the war.

⁴⁵ See discussion in Wickizer, *World Coffee Economy*, pp. 124-25. War Department Technical Manual 10-250 states that if "proper" storage conditions exist, coffee stored at 40° F. would "probably" keep indefinitely.

⁴⁶ Until the early 1930's there seems never to have been occasion to hold coffee stocks for more than a few years. The huge supplies held in Brazil during the 1930's were apparently managed so that the oldest coffee never reached the market but was included with the inferior grades and some good coffee in the coffee-destruction program (see Chapter 4).

weight. Parchment coffee, if efficiently dried, can be kept up to six months without deterioration; but for reasons of economy, few producers wish to retain their product over to the next season.

A distinction should be made between old-crop coffee and aged coffee. Old-crop coffees acquire "old-crop flavor" because of their becoming old. Old-crop coffee may be marketable at little or no discount if it has been held under favorable conditions of storage, but it may carry a substantial discount if its quality has deteriorated noticeably. The same old-crop coffee, however, may enter special storage and treatment for the specific purpose of aging in order to add to, or develop, its attributes. Such coffee often brings a premium, because, if skillfully aged, it is in fact superior to comparable new-crop coffees. Much confusion arises from the fact that all aged coffee is necessarily old-crop, but not all old-crop coffee has been aged in a manner designed to add to its value.⁴⁷

Whatever benefits may accrue from the aging of coffee, it seems that theoretically they apply to sharp coffees more than to milds.⁴⁸ The mellowing process tends to make mild coffees insipid. Many attempts have been made in the past to develop processes for artificial aging, but this quest seems less vigorously pursued today.⁴⁹ In fact, aging of coffee seems to have been a vogue, and there are many coffee buyers today who are unwilling to concede that age adds anything to the desirability of most growths.

Coffee characteristics differ so widely among growing regions and from season to season, and conditions of storage vary to such an extent, that it is probably impossible to define an optimum period of storage. Coffee quality, as pointed out earlier, depends upon many factors, and improvements in one direction may necessitate compromises in another. The question of storage and its relationship to coffee quality assumed a new importance to the industry when World

⁴⁷ In the period of OPA regulations in the United States old-season coffee, under certain circumstances, was sold at prices above established ceilings, apparently on the ground that age added to its value. This seems to have been a doubtful contention, confusing old-crop coffee with aged coffee.

⁴⁸ In Brazil some growers are said to hold coffee from 5 to 8 years without seriously affecting quality, although after a year or two color becomes lighter and if held "too many years" some of the flavor is lost. Spielman, *op. cit.*, p. 95.

⁴⁹ Before the Suez Canal was opened the 6-month voyage in damp holds from India to Europe caused coffee to turn white, but imparted to it a certain flavor preferred by many in Norway, France, and Switzerland. Now special methods of curing Indian coffee by allowing the monsoon winds to blow continuously on each bag and repacking every week for about 6 weeks produce a silvery white bean, known as "monsooned coffee." "The Story of Indian Coffee," *Indian Information* (New Delhi), Sept. 15, 1941, IX, 304.

War II forced the closing of the European market and, for the first time, the carrying of stocks in some of the mild-producing countries as well as in Brazil.

Although aging may enhance the value of coffee under certain conditions, storage facilities in Latin America before the war were hardly adequate even for short-time holding of very substantial surpluses. Fortunately for most of the mild-producing countries, surpluses did not accumulate to the extent originally anticipated. Owing to war developments that made shipping so scarce that the United States was forced to draw on the nearest sources of supply, most of the mild producers shipped far in excess of the quotas established earlier under the Inter-American Coffee Agreement. The extensive warehouses built in Colombia during the period of anticipated surpluses have seldom been full since then, the coffee movement out of the country ordinarily being regular and rapid.⁵⁰

DEVELOPMENT OF BRANDS, BLENDS, AND BLENDING

Coffee is by no means a homogeneous commodity. A beverage may be made from any coffee, but the product sold commercially to the ultimate consumer is usually a blend. Blending is necessary to harmonize the widely varying characteristics of different coffees in order to produce a desired flavor. Coffees differ in inherent characteristics and are further differentiated on a quality basis by the prominence of such characteristics. The character of the raw product depends in part upon variety and climatic and soil conditions, and in part upon cultural practices and methods of preparation for market. The character of the prepared beverage not only depends upon the raw product used, but also upon the techniques employed in roasting and brewing. Thus, some of the factors affecting coffee quality are controllable, while others are not; but all bear on the industry's problems of production, influence consumption, and are reflected in coffee prices.

The trade must translate consumer taste distinctions into kinds and proportions of coffees in a blend necessary to produce a given result in the cup. Some coffees are characteristically strong in flavor, some are mild, some have a finer aroma than others, some have a better appearance, and so on. All of these characteristics are described by a trade jargon that helps to identify any particular lot

⁵⁰ The Colombian Coffee Growers Federation is said to have warehouse space capable of storing 3,750,000 bags of coffee.

of coffee as to its commercial utility,⁵¹ and therefore more or less establishes a value for it in relation to all other kinds, types, and grades of coffee.

Commercial grade may have little or nothing to do with the cup or drinking quality of a coffee, for grading is based on such factors as size of bean and number of defects and impurities. A coffee classified well up the grading scale may have poorer drinking qualities than one further down the scale. It is therefore necessary, and is standard practice today, for both buyers and sellers to employ a "cup test" to determine the merits of particular lots of coffee.

The most marked strides in the development of coffee as a beverage have been in roasting and blending, packaging, and especially in brewing. Consumption has been stimulated more by progress in preparing green coffee for final consumption than by improvement of the raw product itself.

Not many years ago coffee was commonly sold in bulk, i.e., the grocer or dealer bought in large lots and sold at the retail level out of bins or other containers in small lots. No great importance was attached to brands or packages, and there was probably some justification for the skeptical consumer belief that coffees selling at different prices really came out of the same bag. In Europe bulk selling is still quite common, but in the United States probably over nine-tenths of all coffee sold is packaged and also branded.⁵²

Nowadays the consumer's problem in the United States is relatively simple—largely a matter of finding a brand that satisfies one's individual taste, is convenient to purchase and use, and is available at a price that can be afforded. Most coffee sold at retail is identified by a roaster's or distributor's brand name, commonly through the package or container in which the coffee is sold. During early post-war years distributors had their own problems in trying to maintain the integrity of their blends.⁵³

⁵¹ In describing coffee flavor such terms as "bitter," "mild," "astringent," "harsh," "mellow," "pungent," "neutral," "dry," and "rancid" are used. Such terms as "strictly soft," "soft," "softish," "hard," "free from Rio flavor," and "Rio" (Rio flavor) are also used in describing Brazilian coffees.

⁵² When cup testing for flavor displaced appearance of the bean as the important basis for judging quality in coffee, it was natural that merchants in catering to consumer tastes would endeavor to capitalize on a better product by means of brand identification. As small individual roasters and dealers gave way to large firms employing national advertising media, the trend toward branding (and packaging because it facilitated branding and protected inherent qualities of the product) was accelerated.

⁵³ In commenting on the Coffee Board's study, referred to earlier, the National Coffee Association of the United States called attention to "a factor not covered in

The composition of any given blend (brand) of coffee is usually a closely guarded trade secret. Standard good brands of coffee in the United States are a blend of 15–40 percent of mild Colombian or Central American coffees with good Brazilian coffees. High-quality brands are blends of milds and may contain no Brazilian coffee, while the cheapest coffees may consist entirely of Brazils.

Coffee merchants have considerable latitude in varying their blend formulas as conditions dictate. Changing price differentials between coffee types or grades may require changes in formulas from time to time. Generally, such changes will be undertaken for the purpose of adjusting cost factors without creating any noticeable change in cup quality. Cup testing, performed by expert coffee tasters, is essential to arriving at just the right combination of coffee and of roasting and grinding techniques.

Despite the wide variety of coffees available, the coffee merchant sometimes finds it difficult to maintain a blend formula from year to year. Changing supply-demand relationships are usually reflected in changing price differentials between types or grades of coffee. Except for Colombians, the supplies of other mild coffees are relatively small; yet the variations in characteristics important to the blender are greater than those available among Brazilian coffees. Hence, when weather or conditions of preparation vary enough to affect the quality of the season's output, the merchant using certain Central American coffees may find it necessary to shift to a different type and supply source because of the limited quantities of high-quality blending coffees available during a particular season. The buyer of Brazilian coffees, on the other hand, may find it feasible merely to shift to another grade of coffee from the same supply source. Still, several roasters in the United States with fairly large requirements nowadays depend entirely upon Central American coffees.

Since the milds in any blend are chiefly responsible for the body, flavor, and aroma of a brand, it is especially important to the merchant that the premium coffees be available in the desired quantities and at prices that permit keeping over-all blend costs at or near a predetermined figure. When a short supply of these coffees or an

the analysis but of extreme long run importance. We think that it will have to be assumed that the integrity of certain mild grades will have to be re-established so that the roaster in the United States can establish a blend and advertise it with at least a minimum of confidence in his ability to secure the quality he needs." (*Weekly Letter*, Sept. 10, 1948, p. 3.) During the war and the early postwar period when the supply of mild coffees was restricted, while demand increased, some coffees of poor quality were marketed without much competition.

abnormal demand forces the price upward, the roaster first seeks alternatives in coffees of similar characteristics. Failing in this, he must make the closest approach possible under conditions of prevailing price differentials. This means altering the proportions of the various coffees used in the blend.

In practice, the coffee merchant's formula for an established brand is never rigidly fixed. While changes in blend composition necessitated by variations in availability and price of blending coffees have little short-term significance (except to the merchant), over longer periods cyclical changes in supply and prices induce significant modifications in consumption. Favorable or unfavorable effects upon the demand for one brand have limited significance to the industry as a whole, but a general tendency for coffee merchants in important consuming markets to use better-quality or poorer-quality coffees does have an undeniable influence upon consumption habits, and hence upon demand and international trade.

Roasting, blending, and grinding techniques should impart additional values to the green coffee available. Methods of packaging and merchandising should maintain those values in the product that reaches the ultimate consumer. Unfortunately, processing sometimes detracts from the qualities inherent in the green coffee, and distribution methods fail at times to preserve freshness in the roasted product. When this happens, all the care in growing and preparing green coffee for market is wasted. But even when all of the factors affecting coffee quality, from seed on the plantation to the package on the retailer's shelf, are under control, and when the best possible product is available to the consumer, there is no assurance that the quality of the prepared beverage likewise will be high. (See additional discussion in Chapter 17.)

CHAPTER 4

CHANGES IN PRODUCTION, TRADE, AND CONSUMPTION

In the evolution of the world coffee economy increased consumption and trade followed an expanding production fairly closely until about the close of the last century. Then the balance was upset by exceptional crops in Brazil and was regained only for short periods throughout the first half of the present century. As the second half of the twentieth century opens many are wondering if the story will be different in the years ahead. In the relatively long history of the world coffee industry has "maturity" suddenly and finally been reached? And, if so, what may be expected from a so-called mature industry?

OVERPRODUCTION OR UNDERCONSUMPTION OF COFFEE?

Circumstances which created the imbalance in the world coffee situation in recent decades have been variously interpreted as "overproduction," with a minority view holding that the industry suffered chiefly from "underconsumption." It is true that coffee could not very well escape the world-wide influences which led to general overproduction or underconsumption of tropical products during the interwar period. The evolution of the coffee economy differs only in degree from the ups and downs of many another tropical crop. Yet there are differences worth noting.

Extension of coffee growing was facilitated by the availability of enormous amounts of suitable and relatively low-cost land. Other crops might have been produced in the same areas, but coffee had a past record of profitability that few others enjoyed. Furthermore, the techniques of coffee production were known to many in these places (including the estate-employed native population) while knowledge of other crops was limited. The extension of communication facilities permitted the opening of regions that previously had been handicapped by transportation costs. Ample capital and credit were available. Planters expected (many had reaped in the past) large and quick rewards from coffee growing.

Wherever coffee became dominant in the economy of the producing country, growers exerted a powerful political influence. As

a consequence, governments tended to favor, by all the well-known devices, the politically powerful special-interest groups. This form of unwitting encouragement to overproduction had the same long-run results that it has had with many "essential" food crops in countries more economically advanced.

The Great Depression of the early 1930's brought a period of underconsumption generally, as the purchasing power of the masses was drastically contracted. For many consumers coffee became a dispensable luxury. In numerous countries, especially in Europe, coffee prices were still high by any standard, because of import duties, quotas, and various taxes. Demand, under these circumstances, was bound to contract, and many even of those wedded to coffee drinking by habit were forced to resort to substitutes and inferior beverages.

In the early 1930's the production-restriction philosophy prevailed generally, except among coffee growers. Understandably, growers of tree crops, involving a long-term capital investment and a waiting period of some years, were not quick to face the facts of "crisis." No solution to their difficulties was obvious, especially on a short-run basis. But appeals for government assistance came naturally.

The coffee policy adopted by Brazil from the beginning of the century has maintained the market through periods of serious depression, but it has not restored the balance between world supply and demand, since it was essentially a unilateral trade restriction and called for no substantial reduction in production. On the other hand, the Brazilian policy of price protection caused production to increase in most other countries, which thus deprived Brazil of the fruits of her sacrifices.¹

In the light of the previous history of coffee production, consumption, prices, trade, and stock position, it is perhaps not enough to be satisfied with recent developments which have largely corrected some of the most unfavorable conditions of the past two decades. A long and detailed historical review of changes is not necessary for present purposes. Nevertheless, some of the events of the prewar decade will be found, in retrospect, to explain the current world coffee situation, and perhaps permit a reasonable appraisal of the outlook for some years ahead.

WORLD COFFEE PRODUCTION AND TRADE

If coffee were not a crop produced almost exclusively in tropical areas and consumed chiefly in temperate United States and Europe,

¹ *The World's Coffee*, p. 450.

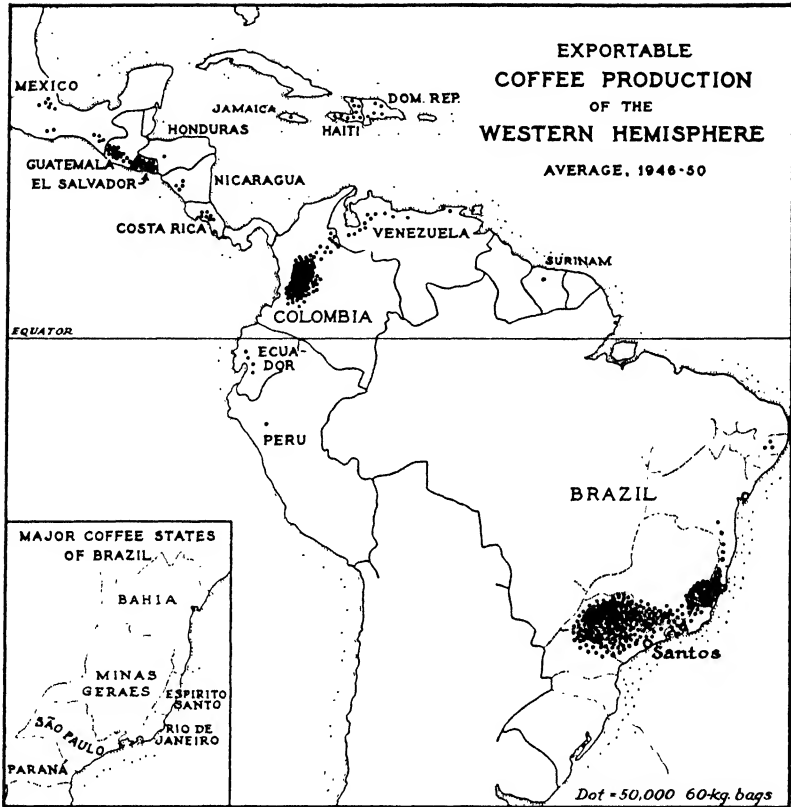
much less would be known of the historical progress of world production. As it is, the record of exports, exportable crops, or receipts at shipping ports must very largely be relied upon as a measure of production. Actual coffee output is known for very few countries, and statistics on the area under coffee, the number and age of trees, yields, and similar matters are but poorly recorded. This is partly because coffee is grown chiefly in countries where the statistical departments of governments are not highly developed, and partly because it is especially difficult to secure and maintain statistics of tree crops on a satisfactory basis.²

During recent years world coffee production has been 10–15 per cent below the prewar average when output exceeded consumption and stocks were substantial. Brazil and Colombia remain the chief factors in production, although numerous smaller countries and colonies contribute substantially to aggregate world supplies. Before the war the Netherlands Indies (now Indonesia) merited consideration as the third producer. These three countries accounted for three-fourths to four-fifths of the world's annual coffee crop. Four other Latin-American countries—El Salvador, Venezuela, Guatemala, and Mexico—accounted for another 9–10 percent of world output. Today the ranking is somewhat altered. Brazil has fallen behind, Colombia has moved ahead, the position of Java and Sumatra is not back to prewar, but a number of African producing areas have shown marked progress (Table 1, p. 68).

The accompanying maps show the approximate location of most of the coffee-growing regions of the world and suggest the relative importance of each in world production, based on estimated average exportable output for the period 1946–50.

² Until the early 1920's the record of exports provided a sufficiently satisfactory measure of production. Beginning with the 1923/24 crop, stocks were held in interior Brazil, port entries were controlled, and the official returns of receipts at Brazilian ports were no longer a satisfactory measure of production. Retention of stocks in the interior gave rise to various methods of calculating the size of each year's crop. Estimates varied widely, according to the method of calculation used by different authorities. The data on world stocks compiled by trade sources became less significant as more of the total supply was held in Brazil, subject to changing government policies; and information on the size of these stocks became less satisfactory. As they accumulated, and the coffee-destruction program was inaugurated in the early 1930's, the Brazilian production and stocks position became increasingly hazy. Even to this day the size of each crop is not known accurately, and for many years no official reports were issued on total stocks. At the moment this is not important, but for many years such information was needed and may be desirable in the future. Furthermore, in recent years domestic consumption of coffee in the major producing countries has become sufficiently important to justify distinctions between total production and production available for export, as will be explained presently.

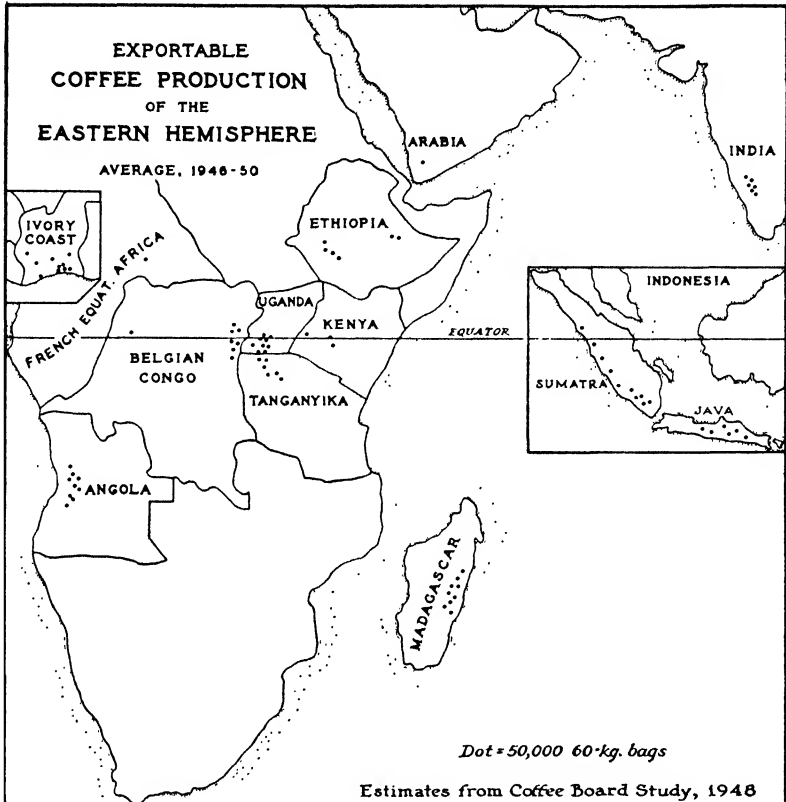
MAP 1



Changes in the relative positions of coffee-growing countries have not significantly altered the high concentration of world production in Latin America. Within the Western Hemisphere, however, counterbalancing influences have been at work. Over a long period—since the beginning of the present century—the dominance of Brazil in the coffee world has declined, while the importance of Colombia and several Central American countries has increased. Even now, however, production north of Panama constitutes only about 15 percent of the world total, while around 72 percent originates in South America.

Since coffee first became appreciated as a beverage in Europe during the seventeenth century, the center of coffee production has shifted several times. Yemen, a province of Arabia and home of the

MAP 2



true Mocha coffee, supplied the world's needs until about 1690. Later, and until about 1830, the West Indies became the principal producing region and London the chief trading center. Then Java took the lead until the end of the 1860's, and Amsterdam and Rotterdam became the market places. Finally Brazil achieved dominance, first with Rio coffee—New York and Le Havre became the trading centers—and then, from the late 1880's until World War I, with Santos coffee, as Le Havre and Hamburg emerged the leading market places in Europe. For the past several decades New York and the Brazilian ports of Santos and Rio have constituted the most important trading centers, and Santos coffee has retained leadership, but the mild coffees from Colombia and other Latin-American countries have become increasingly important in production and trade.

The "other" group of Latin-American coffee producers is relatively large, but no single country ordinarily contributes as much as 1 percent of total world output. In contrast, several African producing areas are now more important. African production, at around 10 percent of the total, has more than tripled since the late 1920's and is up 75 percent over prewar. Asiatic output (chiefly in Java and Sumatra) was apparently stabilized around 6 percent of the world total before the war, but has since declined drastically.

TABLE 1.—TOTAL COFFEE PRODUCTION OF PRINCIPAL PRODUCING COUNTRIES, 1935/36 to 1939/40 and 1945/46 to 1949/50*

Continents and countries	Thousand bags of 60 kg.		Percentage of world total	
	1935/36-1939/40 average	1945/46-1949/50 average	1935/36-1939/40 average	1945/46-1949/50 average
World total	41,600	36,852	100.0	100.0
South America	31,163	26,209	74.9	71.1
Brazil	25,340	19,196	60.9	52.1
Colombia	4,452	5,938	10.7	16.1
Venezuela	940	740	2.3	2.0
Others	431	335	1.0	0.9
Central America and				
Mexico	5,340	5,669	12.8	15.4
El Salvador	1,091	1,120	2.6	3.0
Guatemala	1,002	1,090	2.4	3.0
Mexico	959	950	2.3	2.6
Haiti	538	616	1.3	1.7
Cuba	425	531	1.0	1.4
Others	1,325	1,362	3.2	3.7
Africa	2,602	3,965	6.3	10.8
British East Africa	785	864	1.9	2.4
Madagascar	537	449	1.3	1.2
Ethiopia	345	372	0.8	1.0
Belgian Congo	320	530	0.8	1.5
Angola	300	674	0.7	1.8
Ivory Coast	250	817	0.6	2.2
Others	65	259	0.2	0.7
Asia and Oceania	2,495	1,009*	6.0	2.7
Indonesia (N.E.I.)	1,961	397*	4.7	1.1
Others	534	507	1.3	1.4

* Data, generally for marketing years July 1 to June 30, are from U.S. Dept. Agr., *Foreign Crops and Markets*, Nov. 3, 1947, Nov. 15, 1948, Nov. 21, 1949, and Nov. 20, 1950. Data for 1949/50 are provisional.

* Four-year average.

It should be pointed out that the data in Table 1 refer to *total* crops, in so far as they can be estimated, rather than to *exportable* production. The difference between the two, for the world as a whole (accounted for by domestic consumption in producing countries), is estimated to be around 8 million bags *vs.* about 5 million before the war. *Exportable production* is the meaningful statistic for purposes of international trade, and elsewhere in the text and basic tables (e.g., Appendix Table I), reference is to quantities of coffee believed to be available for sale and shipment overseas. In general the ranking of countries as coffee producers is not greatly altered, but there are exceptions.³

A variety of factors determine the course of international trade in coffee but in the prewar period perhaps none was more influential than the coffee policies of Brazil. To be sure, tariffs, colonial preferences, import restrictions, and various taxes on coffee consumption tended to narrow markets and restrict trade, as in the postwar period, but Brazilian attempts to "stabilize" the market and support prices undoubtedly accounted for the most significant long-term changes. Many other more or less important factors that are involved range all the way from the weather in growing areas to the state of industry and employment in consuming countries.

Brazil, though much less dominant than a few decades ago, before the adoption of "stabilizing" policies, is still the chief factor in the international coffee trade, accounting for a little over half of world aggregate exports. Before World War II the proportion was a little greater, but a considerable distance from the position enjoyed prior to World War I, when some 70 percent of world coffee exports originated in that country. Even though Brazil's dominance of the world coffee trade has gradually weakened, it continues sufficiently great to easily overshadow, at least on a volume basis, her nearest rival. Mild-producing Colombia, however, has been consistently growing in importance over several decades.

Colombian exports of coffee were only 4.3 percent of the world total before World War I, but had grown to 14.2 percent by 1935-39, and further increased to 18 percent of the total in 1945-49. Today, Brazil and Colombia dominate the international coffee trade. Together they ship some 72 percent of all coffee exported to overseas markets. Another 15 percent comes from smaller producers of the Western Hemisphere, making the Latin-American total 86-87 percent

³ Cuba, for example, is included in Table 1 but is otherwise almost ignored because practically all of its production is consumed locally and in recent years coffee exports frequently have been prohibited.

of the world total—slightly larger than prewar. The remainder now comes mostly from Africa, since the Asiatic producers have not recovered their prewar position. A summary view of world coffee exports since 1935 is provided in Table 2.

TABLE 2.—EXPORTS OF COFFEE FROM PRINCIPAL PRODUCING COUNTRIES, 1935-49*

Continents and countries	Thousand bags of 60 kg.			Percentage of world total		
	1935-39 average	1940-44 average	1945-49 average	1935-39 average	1940-44 average	1945-49 average
World total	27,748	22,182	30,226	100.0	100.0	100.0
Latin America	23,875	19,405	26,178	86.0	87.5	86.7
Brazil	15,050	10,809	16,281	54.2	48.7	53.9
Colombia	3,954	4,367	5,430	14.2	19.7	18.0
El Salvador	922	903	1,015	3.3	4.1	3.4
Guatemala	772	807	875	2.8	3.6	2.9
Venezuela	734	527	495	2.6	2.4	1.6
Mexico	599	483	608	2.2	2.2	2.0
Haiti	447	353	444	1.6	1.6	1.5
Costa Rica	391	346	318	1.4	1.6	1.1
Nicaragua	264	219	185	1.0	1.0	0.6
Others	742	590	527	2.7	2.6	1.7
Africa	2,251	2,406	3,860	8.1	10.8	12.7
Brit. E. Africa ^a	748	681	692	2.7	3.1	2.3
Madagascar	455	338	406	1.6	1.5	1.3
Belgian Congo	283	294	501	1.0	1.3	1.7
Angola	281	324	733	1.0	1.4	2.4
Fr. West Africa	183	379	759	0.7	1.7	2.5
Others	301	390	769	1.1	1.8	2.5
Asia and Oceania	1,624	370	188	5.8	1.7	0.6
Indonesia (N.E.I.)	1,356	268	67	4.9	1.2	0.2
Others	268	102	121	0.9	0.5	0.4

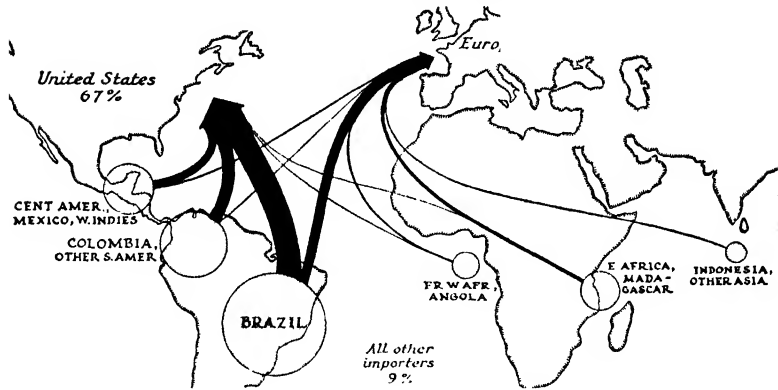
* Data from Appendix Table II.

^a Kenya, Uganda, and Tanganyika.

The 15 countries specifically listed account for 95 percent of the world total. The "other" groups include some 110 countries, colonies, or territories (including secondary exporters), only a few of which are of much importance. Both the volume and general direction of the international coffee trade for five postwar years are shown graphically in Map 3.

MAP 3

INTERNATIONAL COFFEE TRADE, POSTWAR



EXPANSION IN CONSUMPTION AND SHIFT IN MARKETS

For several centuries coffee drinking has been a custom predominantly of nationals of European origin. The British are the important exception. Europeans took up the habit of coffee drinking in the seventeenth century, about the same time that tea and tobacco were introduced.⁴ Coffeehouses, first opened in Constantinople and Venice during the sixteenth century, had been established throughout most of northern Europe by the middle of the seventeenth. Sometimes attempts were made to suppress them on the grounds that they were centers of sedition. But they continued to flourish despite heavy government taxes on coffee and the application of various measures restrictive of consumption. By the nineteenth century, taxes were less severe, planes of living had improved considerably, preparation techniques had progressed, and coffee drinking had increased enormously.

⁴ Earlier, by the opening of the sixteenth century, coffee drinking had become popular in Arabia. Despite religious objections that the beverage was intoxicating, the coffee-drinking habit persisted and soon spread to Egypt, Turkey, and other Mediterranean countries. The first recorded use of coffee, however, was as a food; later it came to be used as a wine, a medicine, a devotional refreshment, a confection, and finally as a beverage. The intrepid travelers of the sixteenth and early seventeenth centuries introduced coffee into Europe from the Near East. But the character of the beverage prepared in Europe was radically different. Eastern methods of brewing were soon discarded in favor of processes appropriate to the many types of coffee-making apparatus that were invented in England, France, Germany, and Italy. The resulting beverage made a far greater appeal to Western tastes. W. H. Ukers, *All About Coffee* (New York, 1935), pp. 13-48, 623-28.

In countries where coffee was the outstandingly popular beverage before the war, as in northwestern Continental Europe and the United States, from 12 to 17 pounds annually were normally used for every man, woman, and child. Average consumption of the coffee-drinking adult portion of the population was higher, equivalent to two or more cups a day. In some countries, such as France and Germany, per capita consumption was considerably lower, even though the aggregate volume of imports was ordinarily very large. When some other beverage had a strong hold, as in Canada, Argentina, and the Union of South Africa, consumption per capita was only 3 to 5 pounds annually. When another beverage was even more strongly entrenched, as in Great Britain, per capita coffee consumption was far lower.⁵

Today the United States and Europe account for about 90 percent of world net imports of raw coffee, a little less than before the war. The United States is by far the leading market, without a rival in importance. During the three decades preceding World War II the positions of the United States and European countries as a group were approximately reversed. Before World War I, when aggregate imports were only two-thirds as large (Chart 3), nearly 40 percent was accounted for by the United States and over half by Europe. In the five pre-World War II years Europe took a little over 40 percent of the total and the United States one-half.⁶

After most European markets became inaccessible to exporting countries in the early years of World War II the United States purchased and consumed more Latin-American coffee than ever before, accounting for approximately three-fourths of the reduced world imports of the war period. The European percentage dropped to about 12. This tendency for consumption to grow in the United States continued at a slower rate well into postwar years despite the enormous rise in coffee prices from the depressed prewar level. The recovery of European markets was relatively slow. During 1945-49

⁵ Some of the numerous factors involved in explaining relative levels of beverage consumption in different countries are discussed in Chapter 17.

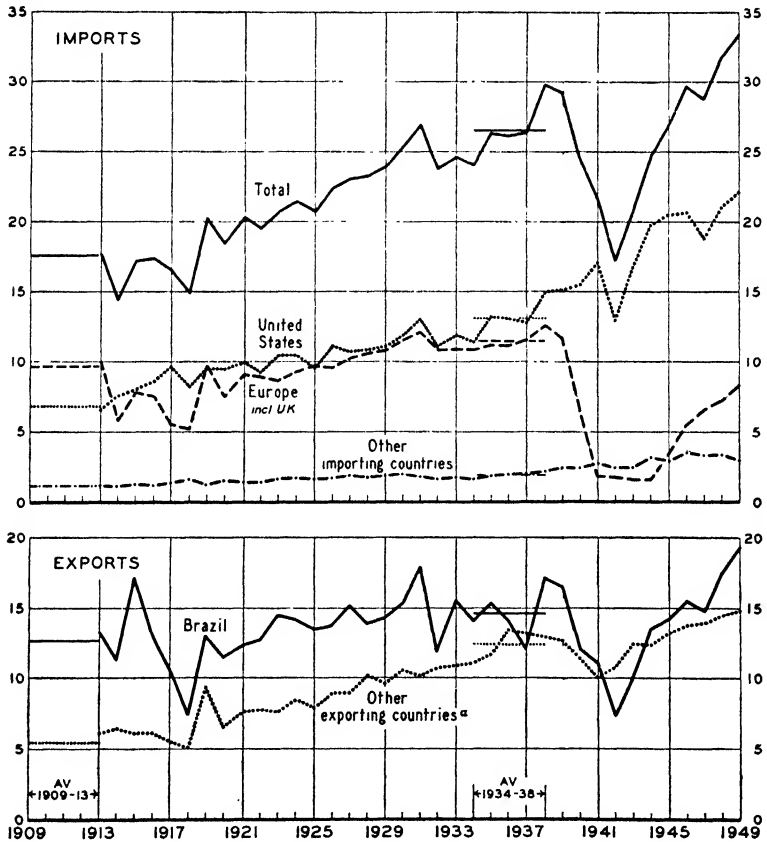
⁶ Broadly, but more accurately, the distribution of world coffee imports (net) for various periods follows:

Years	World total (thousand bags of 60 kg.)	Percentage of world total		
		United States	Europe	Other countries
1909-13 average	17,554	38.9	54.6	6.5
1935-39 average	27,625	50.2	41.5	8.3
1940-44 average	22,660	75.6	12.2	12.2
1945-49 average	30,077	68.6	20.6	10.8

they absorbed only half their prewar takings, and accounted for about one-fifth of world coffee imports, but the trend was up. In 1949 European imports were at a rate almost three-quarters of the prewar average.

In the years just preceding the outbreak of World War II, France and Germany were by far the most important European markets. Their aggregate imports constituted half the total of all European coffee imports. Their per capita consumption, however, was lower than that of most of the Scandinavian and Low Countries. Following

CHART 3.—WORLD IMPORTS AND EXPORTS OF COFFEE, 1909-49*
(Million bags of 60 kg.)



* Data from sources indicated in Appendix Tables II and III. Horizontal lines represent averages for 1909-13 and 1934-38 respectively.

^a Mostly exporters of mild coffee.

France and Germany in order of importance were Belgium, Sweden, the Netherlands, and Italy. These four accounted for an additional 25 percent of European coffee imports. Denmark, Spain, Finland, Norway, Switzerland, and the United Kingdom followed in the order listed (Table 3).

In the Americas only Argentina and Canada provided markets of much importance in addition to the United States. (All of the coffee-producing countries of Latin America are, of course, relatively heavy consumers of their own coffees.)⁷ The Union of South Africa and Algeria each absorbed about the same amount of coffee as the United Kingdom—under 1 percent of world net imports. A large number of miscellaneous countries imported even less, and in the aggregate they accounted for only 4.4 percent of world imports.

Postwar (1945–49) world coffee imports averaged only about 9 percent greater than prewar, but the changes for individual countries were far more pronounced. Shrinkage in the size of the European market was largely compensated for by the greater absorption in the United States. Countries in the “other” classification also generally increased their takings, but in Europe only Belgium, the United Kingdom, and Switzerland imported more coffee than before the

⁷ Official reports submitted by member governments to the Inter-American Coffee Board (*Coffee Board Study*, p. 10) estimated domestic consumption as follows:

Country	Year of estimate	Thousand bags of 60 kg.
Brazil	1942–43	5,368
Mexico	n.a.	500
Cuba	1946	478
Colombia	1945	427
Venezuela	1945	410
Guatemala	1945	230
Haiti	n.a.	193
Dominican Republic	1945	167
El Salvador	1945	115
Others: Costa Rica, Ecuador, Honduras, Peru, Nicaragua...	n.a. or 1945	203

Total (14 principal American producing countries) 8,091

Despite these so-called “official” estimates, guesses are still being made as to the true situation since in most cases reliable information is admittedly lacking. When world coffee supplies come into closer relationship with demand, the accuracy of estimates of consumption in producing countries assumes some importance. For example, if the Brazilian estimates are off by a few million bags, as some perhaps justifiably suspect in view of the notorious deficiencies in other Brazilian coffee statistics, the “tightness” of the supply situation at any time may be sufficiently exaggerated to have an unreasonable influence on prices. (Brazilian consumption in 1939 was officially estimated at around 6.7 million bags while some estimates in 1949 placed consumption as low as 2.5 million bags.)

war. Numerous relatively important European coffee-consuming countries in prewar years failed, for one reason or another, to show full recovery in coffee imports.

Additional light is thrown on the subject by considering the data

TABLE 3.—NET IMPORTS OF COFFEE INTO PRINCIPAL CONSUMING COUNTRIES, 1935-49*

Countries	Thousand bags of 60 kg.			Percentage of world total		
	1935-39 average	1940-44 average	1945-49 average	1935-39 average	1940-44 average	1945-49 average
World total ^a	27,625	21,660	30,077	100.0	100.0	100.0
United States ^b . . .	13,873	16,366	20,619	50.2	75.6	68.6
Europe	11,455	2,634	6,203	41.5	12.2	20.6
France	3,036	692	1,281	11.0	3.2	4.3
Germany,						
Austria	2,742	191	. . . .	9.9	0.9	. . .
Belgium,						
Luxembourg	844	92	1,189	3.1	0.4	4.0
Sweden	837	321	642	3.0	1.5	2.1
Netherlands . .	618	55	293	2.2	0.3	1.0
Italy	568	59	441	2.1	0.3	1.5
Denmark	511	29	194	1.8	0.1	0.6
Spain	(397) ^c	195	218	(1.4) ^c	0.9	0.7
Finland	375	69	100	1.4	0.3	0.3
Norway	311	42	231	1.1	0.2	0.8
Switzerland . . .	289	165	304	1.0	0.8	1.0
United						
Kingdom . . .	273	546	732	1.0	2.5	2.4
Others	1,051 ^d	179	. . .	3.8 ^d	0.8	. . .
Other countries . .	2,297	2,660	3,255	8.3	12.2	10.8
Argentina	401	482	538	1.4	2.2	1.8
Canada	301	448	569	1.1	2.1	1.9
Union of South						
Africa	253	403	(419) ^e	0.9	1.8	(1.4) ^e
Egypt and						
Sudan	128	148	349	0.5	0.7	1.2
All others	1,214	1,179	. . .	4.4	5.4	. . .

* Data from Appendix Table III.
^a Excluding U.S.S.R.
^b Including foreign trade and territories except Hawaii.
^c 1935 only.
^d Includes approximation for Spain.
^e Four-year average.

on apparent *per capita* consumption⁸ in Table 4. Some radical changes are suggested in recent levels of coffee consumption in a number of countries. Abrupt declines from prewar are shown for various European markets where recovery has been slow or where purchasing or exchange difficulties have been present. Gains are most notable in Belgium, the United States, Canada, and the United

TABLE 4.—CHANGES IN APPARENT PER CAPITA CONSUMPTION OF COFFEE IN SELECTED COUNTRIES, 1935-49*
(Pounds)

Country	1935-39 average ^a	1940-44 average	1945-49 average	1948	1949
Denmark	18.0	1.0	6.2	6.5	8.4
Sweden	17.6	6.6	12.5	11.1	11.0
Norway	14.1	1.9	9.7	12.1	11.3
United States	14.0	15.8	18.6	18.6	19.3
Finland	13.7	2.5	3.4	5.4	6.2
Belgium, Luxembourg	12.9	1.5	18.0	21.3	22.4
France	9.7	2.5	3.8	3.8	4.7
Netherlands	9.5	0.8	4.0	4.8	5.3
Switzerland	9.1	5.1	8.9	12.1	8.7
Germany, Austria	4.9	0.3	...	.5 ^b	1.1 ^b
Algeria	4.4	2.4	3.3	3.7	2.0
Argentina	3.8	4.2	4.4	5.7	2.5
Canada	3.6	5.1	6.0	6.8	7.4
Union of South Africa	3.4	5.0	4.8 ^c	4.5	4.1
Spain	2.1	1.0	1.0	1.3	0.6
Italy	1.7	0.2	1.3	2.0	2.3
United Kingdom	0.8	1.5	2.0	2.3	2.0

* Calculated from net imports shown in Appendix Table III. The postwar figures for Belgium are higher by an indeterminate amount, and those for France lower, than actual consumption owing to smuggling of coffee from Belgium to France.

^a A rough measure of the per capita level of coffee consumption in a few of the American producing countries for the prewar (1934-38) period is given as follows in *The World's Coffee*, p. 455: Dominican Republic, 19.3; Brazil, 15.6; Cuba, 15.5; El Salvador, 13.1; Colombia, 5.4. Because of the wide range in estimates of domestic consumption in many of the producing countries, statistics that might show the real level of intake in comparison with the leading import markets are largely lacking.

^b Bizone of Germany; and Austria.

^c Four-year average.

⁸ Per capita figures are the best measure available of the extent of the coffee-drinking habit or custom in a particular country, though they may sometimes be misleading because of important regional variations obscured by the averages.

Kingdom, the latter two countries being traditional strongholds of tea drinkers. The remarkable rise in apparent consumption in Belgium seems partly attributable to the rapid postwar recovery in that country and resumption of imports on a favorable basis from the Congo. But the magnitude of the gain is exaggerated since some of the coffee imported was smuggled into France and hence was not recorded as a re-export.⁹ Per capita consumption of coffee in Belgium was lower than indicated in Table 4 and that of France higher by an unknown amount.

The permanency of the postwar levels of per capita coffee consumption, especially in Europe, cannot be assumed. In countries with a record of several decades of high consumption, it may be safely concluded that a postwar return to those levels would have some permanency, but failure thus far to regain the prewar level in other countries undoubtedly suggests temporary difficulties. The continued expansion in coffee consumption in the United States is a most significant trend. It was in evidence before the war but has been accentuated since then. Proximity to producing areas and the absence of import duties and taxes on consumption, together with rising planes of living and sustained purchasing power in the United States, have all contributed to this expansion. Low prices during the 1930's, importation of greater amounts of finer-quality coffee, and still further improvement in the quality of the beverage made, were other influences.

Formerly the Scandinavian countries had a higher per capita consumption than the United States. In most other parts of Europe high tariffs, taxes, colonial import preferences, and relatively lower purchasing power conspired to keep coffee beyond the means of the masses. Hence growth in consumption was discouraged, and per capita consumption remained at levels lower than in the United States. The table suggests that per capita coffee consumption in the late 1930's in Denmark and Sweden had reached, and in Norway and perhaps Finland and Belgium was approaching, a level where further expansion might be limited. In these countries, as in the United States, a material contraction in consumption, under normal circumstances, would occur only with a marked rise in retail prices.

Countries with a traditionally low level of coffee consumption may show striking percentage changes in the future, but are not likely to join the ranks of Scandinavian countries and the United States in the

⁹ United Nations, Department of Economic Affairs, *Economic Survey of Europe in 1949* (Geneva, 1950), p. 34.

foreseeable future. Many nations in the in-between group, however, may show significant changes, as the postwar period is extended. Of the countries listed in the table above, Spain and Italy have long had the highest coffee duties or taxes and are among the lowest in per capita consumption. Tariffs and other restrictions to the free importation of green coffee remain in the postwar period a major deterrent to the expansion of the world coffee industry (Chapter 17).

Taxes on coffee, tea, and tobacco have long been a favorite means of raising revenue in some countries. No European market has kept coffee consistently on the free list, though duties have usually been lowest in the United Kingdom, where per capita consumption before the war was less than one pound annually, but has shown signs of rising in recent years, gains partly attributable to a long period of tea rationing. High taxes on coffee, combined with low purchasing power, help to explain the low coffee use in southern European countries, but not in the British Commonwealth.

Coffee was the preferred drink of the British until about the middle of the eighteenth century, but it was the London coffeehouses that popularized tea in England. The explanation of the shift doubtless lies, in a large part, in the history of the Far Eastern ventures of the East India Company, which owed its greatest success to monopolization and development of the world's tea trade.¹⁰

As coffee drinking increased in popularity in Continental Europe, tea remained the preferred beverage in the United Kingdom, as it did also in Russia and most of the Orient. Moreover, wherever the British colonized, as in Australia and Canada, tea also became the favorite. Canada's growing use of coffee is perhaps a reflection of that country's increasing response to American, rather than British, cultural influences in recent years. In the Union of South Africa, the large Dutch element accounts for the relatively greater preference for coffee.

PREWAR MARKET AND PRICE DEVELOPMENTS

At the outbreak of World War II, the world coffee situation could still be described in terms of the great "coffee crisis" of the decade

¹⁰ "It constituted not only the world's greatest tea monopoly but also the source of inspiration for the first English propaganda in behalf of a beverage. It was so powerful that it precipitated a dietetic revolution in England, changing the British people from a nation of potential coffee drinkers to a nation of tea drinkers, and all within the space of a few years." W. H. Ukers, *All About Tea* (New York, 1935), I, 67.

But in addition to commercial enterprise, geographical relationships and trade routes, together with the nature and scope of wars during this period, were also factors of consequence.

about to close, a crisis exaggerated by Brazilian efforts to control the world market. Early in the 1930's the need for enlarging the scope of coffee control had become obvious to Brazilian growers. A scheme for an export cartel was proposed but rejected at an International Coffee Congress held in São Paulo in 1931, the first of a series of unsuccessful conferences.¹¹ The initial Pan-American Coffee Conference held at Bogotá in 1936 also failed to take positive steps toward effective regulation of coffee exports, prices, or production.

Before the depression of the 1930's the mild coffees of Central and South America almost always sold at a fairly substantial premium over Brazilian coffees. By 1932 the differential had narrowed appreciably and continued small for several years thereafter. A very small difference between the cost of coffees of considerable difference in quality tends to shift demand toward the better value. As Brazilian coffee prices were artificially supported, the competitive position of exporters of mild coffees was strengthened.¹² Colombia was of course a principal beneficiary of the Brazilian coffee-control scheme, and exports of Colombian coffee expanded at the expense of Brazil.

If the Brazilian coffee-defense policy were to be pursued further, an agreement was necessary with Colombia, and other American coffee-exporting countries, that would remove the existing competitive disadvantages. Two approaches to this problem were: (1) to restore and maintain the price differential between mild and Brazilian coffees by a policy in the mild countries of following the lead of Brazil in adjusting prices; or (2) to evolve a system of allocating markets

¹¹ See Wickizer, *World Coffee Economy*, pp. 166-67.

¹² This is illustrated by differences between average prices of Colombian and Brazilian coffees in the New York market:

Years	Premium of Manizales over Santos No. 4	
	Cents	Percent
1913-17 average	3.58	24.65
1918-22 average	3.63	20.00
1923-27 average	5.10	20.52
1928-32 average	3.45	19.16
1933-37 average	1.54	13.22
1938	3.31	30.17 ^a
1939	4.25	36.45 ^a
1940	1.32	15.77
1941	3.90	26.45

^a Effect of Brazil's abandonment of price-supporting measures.

based on quota agreements that would "freeze" the competitive position of the countries concerned, regardless of price differentials.

The Brazilian position at the Bogotá conference was that the entire coffee industry had benefited from their efforts to maintain price equilibrium by destroying a portion of the crop and promoting consumption. The mild producers, however, were confident that the Brazilians were committed to a price-supporting policy and would continue controls even without their aid. At this time it did not appear that Brazil would abandon the coffee-defense policy pursued for so many years. Resolutions were passed but had no binding effect and were mostly expressions of desirable objectives.¹³

Following the Bogotá conference, meetings were held in New York from which emerged a schedule of relative parities between prices of different coffees for the guidance of participants.¹⁴ But the proposed minimums were not observed and the contemplated differential between Brazilian and Colombian coffees was not attained. The situation from Brazil's standpoint grew worse, her leadership in prices clearly was not followed, and the exporters of mild coffees got more of the business. In 1937, for the first time, imports of Colombian coffee into the United States reached one-fourth of the total, while imports of Brazilian coffee fell from around 65 percent in the earlier 1930's to slightly over half the total.

From 1931 until the fall of 1937 the main features of Brazilian coffee defense were the destruction of existing and new supplies and the prohibition of new planting in an effort to bring about a better adjustment with demand. The coffee-destruction program was inaugurated in 1931 with the burning of 2.8 million bags. Another 9 million bags were destroyed in 1932 but stocks continued at record levels, prices were depressed, and the statistical position not greatly improved. In 1933 the National Coffee Department (DNC) was established, and the federal government thereby assumed full charge of coffee defense, which previously had been partly administered by the states.

As crops continued large (29.6 million bags in 1933/34, an all-time high) and stocks accumulated, a "sacrifice" quota plan was introduced which provided for the destruction of a varying proportion

¹³ Of special interest is the resolution on prices and control of production, the text of which is given in Wickizer, *op. cit.*, p. 169.

¹⁴ Colombia was to keep the minimum price of Manizales at 12 to 12.5 cents, while Brazil was to peg Santos 4's at a minimum of 10.5 cents. The average annual price of Santos No. 4 in New York in 1936 was 9.5 cents; in 1937 it rose above the 10.5-cent minimum to 11.1 cents. But Manizales sold at an average price of 11.3 cents in 1936 and rose to only 11.6 in 1937.

of each year's new crop in addition to the burning of existing stocks. Despite smaller crops in the mid-1930's, maintenance of exports at the 14-15 million bag level, and continued destruction, prices eased to 8 cents in August 1935.

The 1936/37 crop was again large (26.4 million bags), a 30 percent sacrifice quota was again employed, destruction was stepped up, and the huge total of 17.2 million bags was burned in 1937. At last drastic action was being taken. With the exception of 1932, when the São Paulo revolution stopped shipments for a while, exports in 1937 fell to the lowest level since early in the 1920's, and mild coffees sold at little or no premium over Brazils. Brazil was rapidly losing her position in the coffee world, growers were dissatisfied and restless, Brazilian exchange was falling rapidly, and credit had become tight.¹⁵ It was therefore high time for a change in policy.

A second Pan-American Coffee Conference was called and met in Havana in August 1937, with 15 countries represented.¹⁶ The Brazilian delegate pointed to the failure of participants of the first (1936) conference to abide by the resolutions. He proposed a minimum program that would prohibit new planting for five years, prohibit exportation of coffee inferior to No. 8, finance an advertising campaign to promote consumption, and protect prices at certain levels. Price differentials were again one of the most important issues; but again Colombia and Brazil could not agree, Colombian spokesmen contending that the maintenance of parity differentials was too burdensome. No agreement was reached except to try again within 60 days.

No action was taken on the proposal to restrict new planting as it was felt that, without a world agreement, Latin-American countries would be penalized while Asiatic and African planters would be free to expand production. At several conferences, the Brazilians had tried to secure an international agreement to limit new planting,¹⁷

¹⁵ "It is no exaggeration to say that many of the most competent observers really believed that the nation was about to crack up financially." *Christian Science Monitor*, Nov. 11, 1937.

¹⁶ In addition to the nine countries (Brazil, Costa Rica, Cuba, Colombia, El Salvador, Guatemala, Mexico, Nicaragua, and Venezuela) at the first (Bogotá) conference, six others were represented at the second. These were Ecuador, Panama, the Dominican Republic, the United States, Honduras, and Puerto Rico, the latter three being represented by observers only.

¹⁷ In addition to the conferences at São Paulo (1931), Bogotá (1936), and Havana (1937), the Brazilian delegation to the London Monetary and Economic Conference (1933) sought an international agreement for the prohibition of new planting in all producing countries and the reduction of existing capacity in Brazil. Also proposed was a plan for consuming countries to remove various barriers to the promotion of coffee consumption. Nothing came of either proposal.

but the problem of excessive productive capacity was Brazil's alone. Other producers generally found a demand for their own additions to world output; and as long as Brazilian growers were unwilling to let their coffee prices seek competitive levels, market conditions would continue to favor non-Brazilian producers. The export-quota scheme was accepted in principle but wide differences of opinion developed over an equitable basis for establishing such quotas. A number of resolutions were passed,¹⁸ but this conference, like those of 1931 and 1936, failed to produce binding agreements among the participants.

With this latest failure to secure the co-operation of other American producers, Brazil had no alternative but to abandon her current defense policy. This was done in November 1937. It was a fateful decision. Plans for the 1937/38 crop had involved a continuation of destruction and another sacrifice quota of 30 percent; but upon the failure of the Havana conference, agreement to a radical change in policy was finally secured. The price-defense policy, first adopted as a permanent feature of state intervention in 1925, was abandoned in favor of one of free competition. By reducing to 12 milreis the export tax, which had stood at 45 milreis since 1933, it was possible to let Brazilian coffee fall to competitive levels without lowering the price received by growers by a corresponding amount.

The effects of the new Brazilian coffee policy were immediate. Prices in world markets fell by one-third, and Brazil considerably improved her position in the export trade. Although they resent charges of "dumping" that were made by competitors, the Brazilians actually did precipitate a coffee war.¹⁹ The permanent abandonment of price defense, however, cannot be viewed in the same manner as a temporary price cut in order to gain a competitive advantage. What happened was that, by abandoning a policy that was gradually pricing Brazilian coffees out of the market, it was possible to return to the former status of supplying a mass market at strictly competitive prices.

The drop in average prices for Santos 4's in New York from 11.1 cents in 1937 to 7.5 cents in 1939 was accompanied by rising exports, from 12.1 million bags in 1937 to 17.1 million in 1938 and 16.5 million in 1939. Whereas other Latin-American producers were the

¹⁸ For a description of the resolutions, see *International Review of Agriculture*, September 1938, XXIX, 421-22 E.

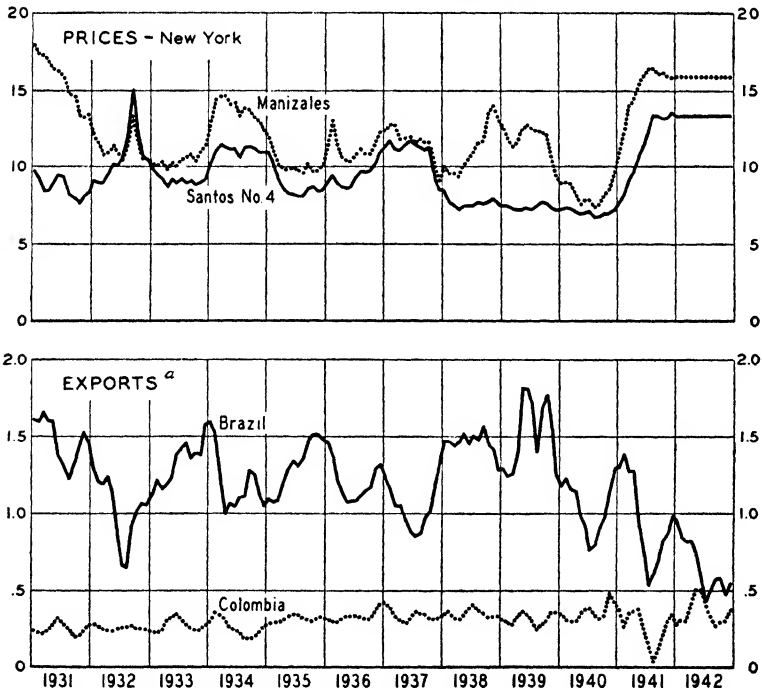
¹⁹ An editorial in the São Paulo newspaper *Folha da Manhã* of Nov. 4, 1937 had this to say: "The suppression of the 45 milreis tax which was the overburden that defeated us in the competitive world markets will result in a lowering by 20 percent of the foreign prices of coffee without affecting our internal situation though it will damage the interests of our competitors who refused to show any spirit of co-operation." Quoted in *Christian Science Monitor*, Nov. 11, 1937.

chief beneficiaries of Brazilian defense policies throughout the early and middle 1930's, they now became the main victims of the change in policy. Colombia and El Salvador reduced their export taxes on coffee and relaxed their foreign exchange regulations, Venezuela introduced an export subsidy, and other countries took similar steps in order to meet the new situation. The colonial coffee producers were least affected, since they enjoyed strong protection behind imperial tariff walls.

After the initial effects of the Brazilian "free competition" policy had worn off, prices of mild coffees began to recover, while Brazils remained fairly steady at the lowest level in many years. Colombian coffees started up in May 1938, and rose so much that average prices in New York for the year 1938 were only slightly lower than in 1937, and even compared favorably with the level that prevailed through the entire period 1932-39 (Chart 4). The old price differential be-

CHART 4.—PRICES AND EXPORTS OF BRAZILIAN AND COLOMBIAN COFFEE, MONTHLY, 1931-42*

(Cents per pound; thousand bags of 60 kg.)



* Data from *Commodity Yearbook, 1939; ibid., 1948.* ^a Three-month moving averages.

tween mild and Brazilian coffees was restored by allowing Brazils to fall and not by increasing the price of milds.

Mild coffees, while no longer as attractively priced in relation to Brazils, continued in demand. The relatively low level of coffee prices, and the small differential between milds and Brazils that prevailed between 1932 and 1937, had induced many roasters to improve their blends by the inclusion of more milds. They saw no compelling reason for making any changes at this time. Consumers were accustomed to prevailing blends, and might soon detect any important modifications; milds had not materially increased in cost; and over-all blend costs had declined because of the substantially lower prices for Santos-type coffees.

Exporters of mild coffees did not continue to increase shipments, but were able to maintain them at existing levels and to retain the portion of the market captured in earlier years.²⁰ Aggregate exports of all coffee rose principally because of greater absorption by the trade of low-priced Brazilian coffees. Roasters selling in the lower-price brackets tended to increase their share of the total market.

Expansion of Brazilian exports, coupled with smaller crops in 1937/38 and 1938/39 and continuation of the destruction program (8 million bags were burned in 1938 and 3.5 million in 1939), resulted in a greatly improved statistical position in 1939. About the time that stocks had finally been reduced to manageable proportions by a series of drastic actions, new problems arose as war broke out in Europe.²¹ The federal government, through the National Coffee Department, continued to retain control over the Brazilian coffee situation, but after November 1937 price-supporting and -stabilizing objectives gave way to other measures designed to protect the country's coffee industry against increasing competition from mild-producing countries, and later against loss of markets resulting from World War II.

²⁰ In the United States market, for example, imports from Colombia amounted to 3.2 million bags in 1937, 3.4 in 1938, and 3.2 in 1939, while imports from Brazil increased from 6.6 million bags in 1937 to 9.1 in 1938 and 9.3 in 1939.

Much of the European demand for mild coffees is normally supplied by African and Asiatic colonies. The Brazilian policy adopted in 1937 had little effect on colonial producers, partly because competition was more definitely on a quality basis and partly because markets were assured by virtue of tariff protection for Empire commodities.

²¹ In his annual report for 1941, J. F. Guedes, president of the National Coffee Department, stated that "were it not for the war which is affecting the entire world, the coffee problem would have been fully and completely resolved. We would no longer have to worry over excesses of our production." *Brazil Coffee in 1941*, p. 19.

DISTRIBUTION AND DISPOSITION OF WORLD STOCKS

Shortly after the outbreak of war in Europe it became clear that coffee producers would suffer substantial losses in markets. Export prospects varied among producers, depending upon the importance of Europe in their total sales. But all expected keener competition in the still accessible United States market and worried about the disposition of that part of forthcoming crops that could not be sold and shipped because of the war.

The most obvious manifestation of surplus coffee production is in accumulated stocks and efforts to manage them. For many years destruction was the only practical solution in Brazil. During all this time the world "visible supply" of coffee had a somewhat restricted meaning; the stocks held in interior Brazil were more important.

So long as Brazilian holdings were far in excess of any possible needs of the world's markets, rather substantial changes in their size were ignored; they had practically no influence on prices. Only after these stocks were reduced to the point where they might be needed if there were a considerable reduction in one year's crop did they again have significance and command attention in coffee circles.

The world "visible supply" of coffee was long defined to include stocks in warehouses in the important receiving ports of the United States and Europe, coffee "afloat" from shipping points, and coffee held in Brazilian ports. The data were never all-inclusive but had certain usefulness before it was the practice to store coffee in producing countries. From the mid-1920's until toward the close of the 1940's stocks held in interior Brazil were a more important factor in aggregate supplies than so-called "visible" supplies.

"World" coffee stocks were for many years considered the sum of the visible supply and interior Brazil holdings. But in addition to stocks classed as visible, the existence of which is a matter of record, and interior Brazil stocks (*not* a matter of certainty since 1937), there were also supplies classed as "invisible," whose magnitude was usually unknown. Such supplies were primarily in importers', roasters', and distributors' warehouses, and secondarily in retailers' and consumers' hands. Their size has significance in reflecting trade appraisals of future market trends as well as current rates of consumption.²²

²² Important distinctions need to be made between the flow of coffee into consuming centers in reflection of changed consumer demand and the flow which reflects only the actions of the trade in building up or reducing stocks in anticipation of price changes or prospective changes in consumer demand.

Although knowledge about invisible supplies within particular consuming countries is always of interest to the trade, at times market situations develop when accurate information is needed for broader purposes. Such was the case in the United States in 1941, when the first comprehensive survey of green coffee stocks and consumption was undertaken by the Department of Commerce. Stocks in the United States increased rapidly following the stimulation of imports upon the signing of the Inter-American Coffee Agreement late in 1940. It was important for establishment of administrative policy in connection with this agreement to know the extent to which stocks had increased as the result of speculative influences, and the extent to which they represented a legitimate growth based upon increasing coffee consumption.

The Department of Commerce survey of green coffee stocks and consumption, based upon roasting volume of roasters, chains, and delivery routes, indicated that the United States had on hand at the opening of 1942 about 4.2 million bags of green coffee, equal to about three-months' consumption requirements at the rate indicated by roasting volume for the last quarter of 1941. This, apparently, was a "normal" situation, and corresponded with the volume importers and roasters were permitted to carry during the control period of World War I.²³ Stocks held by ultimate consumers are ordinarily not a factor of importance, amounting to less than two weeks' supply.

With an international trade in coffee of around the 30-million-bag level, it is generally considered that port stocks in Brazil of 3.5 to 4 million bags are adequate. Some 1 to 2 million bags are always "afloat" to the United States in normal times and lesser amounts to Europe. When the United States consumption level is around 20 million bags, stocks in the hands of importers, roasters, and distributors of less than about 4 million bags will often create marketing complications. The Department of Commerce compilation of so-called "invisible" stocks in the United States was discontinued after the war and was not resumed until late 1949. Whatever was known about this type of stocks in the principal coffee-consuming markets of the world was derived from estimates of the trade, which often differed radically.

The known existence of world surplus stocks, wherever held, seems to have a more pronounced effect on prices in a particular consuming country than the size of its domestic stocks.²⁴ Yet on the gen-

²³ See Irving Bernstein, *Control of Coffee in World War I* (U.S. Dept. Labor, Bur. Labor Statistics, September 1941, mimeographed), p. 8.

²⁴ This is generally true for the principal raw commodities of international importance. "Further, in the absence of special national controls, it is the world supply

eral question of the precise influence of stocks on prices, there seem to be many opinions and beliefs but few established facts. Visible supplies have long been a market factor for a number of commodities in international trade. Actions based upon changes indicated by visible-supply statistics, however, have proved ill-advised upon important occasions because visibles were not an accurate reflection of total stocks or changes in aggregate supplies. In the absence of more complete information traders necessarily were forced to base decisions upon available evidence. The mere fact that a large number of the trade employed an imperfect barometer to help them anticipate changes was often enough to affect price behavior, at least temporarily.

Reliance upon certain market barometers on the part of traders over a long period of years has given rise to a number of firmly held beliefs having some foundation in fact but not enough to justify dogmatic generalizations.²⁵ Even after market information has been improved, considerable time elapses before many take advantage of it, so strong is the prevalence of certain notions and the habitual dependence upon more familiar criteria of market evaluation.²⁶

Before 1924, stocks were accumulated at Brazilian ports in sufficient volume to meet the varied grade and quality demands of buyers. When control was instituted over the movement from the interior to shipping ports, port stocks were reduced by more than half, and buyers became dependent upon actions of the coffee-defense administration in releasing interior stocks. The manner in which supplies were

on hand rather than the domestic stocks that have determined the course of prices in individual countries." See the National Industrial Conference Board study by R. F. Martin, *International Raw Commodity Price Control* (New York, 1937), p. 5.

²⁵ Intensive studies by the Food Research Institute on wheat revealed a number of almost wholly false suppositions commonly held by the trade with regard to such matters as: the price relationship between futures as indicating the market's appraisal of expected price change, the effect of changes in crop prospects on certain futures prices, the relation of wheat supplies and specific stocks to price spreads, and so on. See, for example, Sidney Hoos and Holbrook Working, "Price Relations of Liverpool Wheat Futures with Special Reference to the December-March Spread," *Wheat Studies*, November 1940, XVII, 102-26.

²⁶ At the time when the cotton and grain stabilization corporations in the United States were actively operating with the support and guidance of the Federal Farm Board in 1930 and 1931, these agencies were charged with accentuating basic weaknesses in wheat and cotton prices by forcing supplies into visible positions—"the show windows." Since the trade was so accustomed to watch and respond to changes in visible-supply statistics, there was no doubt some basis for this contention. With improvement in information on wheat stocks, whether visible in the old sense or not, the trade came to place less dependence upon reports of visible supplies. Coffee traders were forced to do likewise after stockholding in interior Brazil became too important to be disregarded.

allowed to reach the market had effects upon prices which are discussed elsewhere.²⁷

Changes in world coffee stocks from month to month or year to year are mostly of historical interest in helping to explain price movements. In general, there is an inverse relationship between stocks and prices of foodstuffs and raw materials of world importance, and the same tendency is shown for coffee.²⁸ However, the exceptions are numerous in the history of commodities subject to control.

The record of world coffee stocks and the disposition of Brazilian supplies during 1925-39, set forth in Table 5, shows clearly the

TABLE 5.—WORLD STOCKS OF COFFEE AND BRAZILIAN STATISTICS ON SUPPLIES AND THEIR DISPOSITION, 1925-39*

(Million bags of 60 kg.)

Calendar year	World stocks			Brazilian supplies			
	Visible supply	Interior Brazil	Total	Destruction in Brazil	Supplies ^a	Disposition ^b	Year-end carry-over ^c
1925	5.1	2.8	7.9	...	19.4	16.0	3.4
1926	4.6	4.5	9.1	...	19.4	16.6	2.8
1927	4.6	6.8	11.4	...	21.2	18.3	2.9
1928	5.2	13.5	18.7	...	30.7	17.4	13.4
1929	5.2	13.4	18.6	...	39.6	18.1	21.6
1930	5.3	25.0	30.3	...	48.8	19.4	29.4
1931	6.3	26.2	32.5	2.8	51.1	25.1	26.0
1932	5.5	28.0	33.5	9.3	51.6	26.0	25.6
1933	6.3	19.0	25.3	13.9	55.2	34.5	20.7
1934	7.9	18.3	26.2	8.2	48.2	27.9	20.3
1935	7.4	18.5	25.9	1.7	39.3	22.9	16.4
1936	7.9	21.3	29.2	3.7	42.7	24.1	18.6
1937	7.7	24.0	31.7	17.2	41.0	35.9	5.1
1938	7.4	....	....	8.0	27.2	31.6	4.4
1939	8.0	....	....	3.5	25.2	26.7	...

* Data on world stocks (annual averages of monthly figures) from U.S. Dept. Comm., *Survey of Current Business, 1938 Supplement*, p. 113; *ibid.*, *1940 Supplement*, p. 112. Stocks in interior Brazil were reported only at irregular intervals after March 1937. Averages for 1934, 1936, and 1937 are for various months (usually six in all) when data were reported. Data on Brazilian supplies are the official figures of the Department of Production Statistics of Brazil *International Yearbook of Agricultural Statistics, 1939-40*, p. 1077). Information on aggregate supplies does not agree with that from other sources owing to differences in reported production. See comment on Brazilian production statistics in Wickizer, *op. cit.*, pp. 89-90.

^a Stocks at beginning of year plus production.

^b Exports plus domestic consumption plus destruction.

^c Stocks at ports and held in the interior.

²⁷ Wickizer, *op. cit.*, pp. 142 ff.

²⁸ *Ibid.*, p. 132.

critical situation that had developed by 1937. That year saw the destruction of 17.2 million bags of coffee, the failure of coffee-producing countries to agree on a program for correcting the maladjusted world coffee situation, the abandonment of price control in Brazil and the announcement of a new policy of free competition, and the fall in Brazilian coffee prices by one-third. Thereafter, with the employment of drastic measures, the supply situation took a turn for the better, exports were expanded as prices were stabilized at the lower levels, and the effects of neglect and the abandonment of trees began to show in coffee yields.

But the failure on the part of Brazil to take essential corrective action earlier in the decade had permitted the mild-producing countries to strengthen their position. World stocks were approaching more normal levels, and the world statistical position had greatly improved when World War II broke out. Then, for the first time, other producing countries faced problems of storing and disposing of surplus supplies.

COFFEE AND WORLD WAR II

Some of the many and varied economic and political repercussions of World War II merit special examination for the light they throw on the present world coffee economy. Others are of interest in themselves. The postwar coffee world remains maladjusted on several fronts, but few will contend that it is not in many ways healthier than for many years before the war. Some positive gains as well as inevitable losses accrued, and those that seem to have lasting significance are discussed in following pages.

Like practically every other industry, coffee was subject to a variety of controls during the war, most of which at one time or another seemed to spell "crisis" or "ruin" to some producers, the trade, or both. With some exceptions, mostly in the trading segment of the industry, the general pattern of the commercial coffee world has remained essentially unchanged. Although coffee was one of the first and most important international commodities to feel the impact of the war, in many ways it fared far better than most. The best indication of this is the continued increase in consumption in the United States despite periods when quality of blends was definitely inferior.

Of the numerous controls over coffee that became necessary during the war, few left their mark on the postwar industry. The German submarine campaign in the Atlantic had a more far-reaching impact than all the various restrictions that had to be imposed. Yet even this did not produce new trends in the coffee economy—it merely accelerated prewar tendencies which favored some producing countries over others and left the problem of oversupplies where it had long been. Important and expanding markets continued to grow after the war as before, whereas shrinking markets generally continued to contract. Thus chance alone seems to have been as influential as deliberately imposed government controls.

VULNERABLE POSITION OF PRODUCING COUNTRIES

Any commodity largely produced in scattered areas of the tropics and subtropics, with markets primarily in the temperate zones, was bound to be affected by shipping difficulties of the scope inevitable

in a war on the scale of World War II. Coffee was no exception, yet the war at sea interrupted the most important world coffee trade life lines only for a relatively short period. Nor did the staggering burden of supply in a two-front and two-ocean war entirely preclude the availability of transportation for a commodity whose chief claims on scarce shipping were based on considerations of morale. Fortunately, the bulk of world coffee supplies and the most important consumption areas were within the Americas, relatively untouched by actual combat.

Colonial producers of coffee in Africa and the East Indies were not so fortunate. With a few exceptions in the early years of the war, they were either shut off from normal outlets or occupied by enemy forces, or their activities were diverted to more important and essential war efforts. In some cases, e.g., British East Africa, wartime controls were established which continued well into the postwar period.¹

At the onset of the war in Europe in September 1939, the commercial "war" between Brazil and the producers of mild coffees was still in progress. Colonial coffees, because of the "sheltered" market afforded by the mother countries, were far less affected than the Latin-American coffees. The fall in prices, following abandonment of price-supporting measures in 1937, enabled Brazil to regain some of the export business lost to the producers of milds in preceding years. The Brazilian statistical position was improving as the result of increased exports, a continuation of the coffee-destruction program, and the prospect of smaller crops. Still, competition was intense and the outbreak of war in Europe threatened to close the second largest coffee market.

The buying wave that began in September 1939 as war broke out (stocks of Brazilian coffee in the United States were small) was short-lived, as traders realized early that the contraction of the European market would create pressure to sell in the United States. Latin-American coffee producers were soon attempting to dump on the United States market coffee that could not reach Europe under war conditions. In 1940 prices of both Brazilian and mild coffees fell to the lowest level in two decades.² The situation confronting the

¹ In the interests of stabilizing coffee prices, long-term contracts were entered into by the Coffee Boards with the Ministry of Food. Current British bulk-buying coffee contracts are for the period 1947-52 and tie in with the maximum retail prices still in effect in the United Kingdom.

² Before the Brazilian export tax was reduced in November 1937 and the price-supporting policy abandoned, the Santos No. 4 grade was selling for 11½ cents a pound in New York. After the adoption of the new trade policy of free competition,

coffee industry seemed to call for some type of controlled marketing if further demoralization was to be avoided.

In their highly vulnerable position Latin-American coffee producers eventually sought security in a regional marketing-control scheme. The full meaning of the war was not apparent to them, however, until after the invasion of the Low Countries in May 1940. When representatives of the coffee-growing countries met in New York in June for a third Pan-American Coffee Conference, they were in a more receptive and co-operative mood than had prevailed in 1936 and 1937.³ But the results of this conference were hardly more tangible than those of the earlier conferences.⁴ At this time, however, the idea of United States participation was advanced in order to enforce some sort of a control plan.

Although war itself should not decrease coffee consumption, the blockade of European ports, shortage of shipping, and general currency difficulties would effectively close the European market for coffee—a market accounting for some 40 percent of the total. The United States market was left unaffected by the war in 1940, but only about half of world exports were normally absorbed there, and the export movement on this side of the Atlantic was threatened by a prospective shortage of shipping. These difficulties, at a time when world coffee supplies were already in excess of consumption requirements, presaged even more critical times for the world coffee industry.⁵

prices in the same market quickly dropped to average only 8½ cents in December. For the whole of 1938, they averaged 7¾ cents; in 1939 the Santos No. 4 grade averaged 7½ and in 1940 slightly over 7 cents.

³ For a brief account of earlier Inter-American conferences, see Wickizer, *World Coffee Economy*, pp. 166–73.

⁴ See P. C. Daniels, "The Inter-American Coffee Agreement," *Law and Contemporary Problems*, Autumn 1941, VIII, 711–20. This article gives an account of the negotiations leading up to the Inter-American Coffee Agreement, the organization of the Coffee Board, and some of the problems encountered during the early months of its existence.

⁵ The reaction of Brazilian growers to the situation created by the war indicated that considerable faith persisted in the efficacy of artificial control schemes. There was apparently a strong sentiment among growers in favor of old-time valorization measures in the belief that, as in 1918, they would soon bring better days. The president of DNC devoted several pages in his annual report for 1940 to recognition of what he termed a "general demand from the interior" for government intervention of the type employed prior to the permanent-defense experience. He went on to explain and defend the federal government's policy in turning down such proposals, and to point out why conditions of 1940 were not comparable with those of 1918. (J. F. Guedes, *Brazil Coffee in 1940* [Report submitted on Apr. 30, 1941 to the Advisory Council of the National Coffee Department of Brazil by its president; Rio de Janeiro, 1941], pp. 21–25.) It is difficult for the outside observer to understand how

The conference held in New York in June–July 1940 was followed by further discussion during July at the Havana conference on Western Hemisphere defense against totalitarian encroachment.⁶ An outgrowth of this conference was the Inter-American Coffee Agreement, signed in Washington on November 28, 1940, after negotiations lasting from August. It was an agreement designed to cushion the impact of war on the economies of Latin-American countries, and was to run for three years beginning October 1, 1940. It was submitted to the signatory countries in the form of a treaty, and was put into effect on April 16, 1941.⁷

One of the most important developments in the recent economic history of coffee was the Inter-American Coffee Agreement, yet the longer-term significance of this war-born arrangement to the industry and trade seems far less now than was anticipated only a relatively few years ago. The circumstance of World War II itself had a more lasting impact on the coffee world than any device that emerged as a product of the war.

The Inter-American Coffee Agreement was the first truly international co-operative scheme for the regulation of the coffee trade and the support of coffee prices. The various valorization and coffee-defense programs of Brazil were strictly national in conception and operation, and all attempts at international agreement prior to 1940 were unsuccessful. For this reason the Agreement will undoubtedly be recalled in future years, when international coffee problems reappear in acute form, as they have over many decades past, as some form of model.⁸ Because this prospect seems certain, a review of the circumstances surrounding the consummation of the Agreement is in order.⁹

THE INTER-AMERICAN COFFEE AGREEMENT

Fourteen coffee-producing countries of Latin America and the United States were parties to the Inter-American Coffee Agreement.

any valorization scheme could be seriously considered as a solution to the problems of 1940, especially in view of Brazilian experience during the 1930's.

⁶ This was the second meeting of the Ministers of Foreign Affairs of the American Republics. The first had been held at Panama in September–October 1939.

⁷ For a complete text of the Agreement and relevant documents, see U.S. State Dept., *Inter-American Coffee Agreement* (Treaty Series 970, 1941). For additional details, see Wickizer, *op. cit.*, pp. 175 ff.

⁸ In the early 1940's, when international commodity arrangements were visualized as a feature of the postwar world, the Inter-American Coffee Agreement was hailed by some, loosely to be sure, as a model for postwar agreements for other commodities.

⁹ A detailed account of the early and most effective years of its operation has already been placed on record by the author.

The pact set up a system of basic quotas for exports from each producing country and for imports into the United States as well as into other markets not closed by the war. United States sponsorship was impelled by the evident need of averting or alleviating economic distress in the coffee-producing countries, and of winning their adherence to Pan-American solidarity against the Axis powers.

Under the Inter-American Coffee Agreement the downtrend of prices was strikingly reversed; within a year coffee prices had doubled. Developments during the war necessitated important modifications in the operation of the Agreement, and the United States was faced with shouldering a large share of the burden of the war-time coffee surplus.

The Inter-American Coffee Agreement was essentially the embodiment of the export-quota idea, but it had several unique features. The principal one was that it constituted the first important international commodity agreement in which a consuming country that was not also a producer participated and played a dominant role. The United States (which then imported half of the coffee entering into world trade) joined in a co-operative agreement with Latin-American coffee-producing countries (accounting for over 85 percent of world production) for the purpose of providing an "orderly" outlet for over 55 percent of their exports. The Agreement was inspired, and perhaps made possible, by abnormal conditions arising from war. It had definite international political aspects in that it represented one measure designed to promote hemispheric solidarity.¹⁰ At the same time, it ran all the risks inherent in any scheme involving political subsidy.

By the terms of the Agreement, three basic annual export quotas were established: (1) for coffee exported to the United States from the signatory countries, (2) for exports to the United States from nonsignatory countries, and (3) for exports by the 14 producing countries to markets outside the United States. The United States, on its part, agreed to limit imports in accordance with these quotas. Thus, on the basic schedule, the parties to the Agreement could export in the aggregate 15,545,000 bags (of 60 kg. net) to the United States,

¹⁰ At the meeting of the Ministers of Foreign Affairs of American Republics at Havana in July 1940, it was agreed that efforts should be made to assure the orderly marketing of commodities of prime importance to the Western Hemisphere. Coffee was one such commodity. From the United States' standpoint any program that increased payments to Latin-American countries to compensate in part for the loss of normal European outlets would strengthen their ability to resist Axis pressure, promote the Good Neighbor policy, and render the United States' strategic position more secure.

and nonsignatory countries could export, and the United States agreed to import from them, 355,000 bags annually, making the entire basic quota for the United States market 15,900,000 bags. This figure compares with 15,482,830 bags imported into the United States in the year ending June 30, 1940, a record total at the time. Outside the United States the producing countries would, if they could, export a total of 11,612,000 bags.

Administration of the Agreement, including the adjustment of quotas, was vested in an Inter-American Coffee Board, composed of delegates of the participating governments. Of a total of 36 votes, the United States had 12, Brazil 9, Colombia 3, and each of the other countries one. The Board was empowered to increase or decrease quotas not oftener than once every six months, by amounts not greater than 5 percent of the basic quotas. If a shortage of supplies was imminent in the United States, however, the Board could, upon a one-third vote (12 votes), increase the United States quota without limit, but any reduction greater than 5 percent at a time required a unanimous vote. Furthermore, in order to shift part of a producing country's United States quota to outside markets, a two-thirds majority was required.¹¹ The Board was also charged with studying the problem of coffee surpluses and working out methods of financing and storing supplies that it was expected would necessarily accumulate during wartime.

The export quotas for individual countries were not set solely on the basis of the coffee production of each country or recent participation in the United States market or any other mathematical formula, but were compromises based upon negotiation.¹² Effecting an agreement on export quotas was not simple.¹³ An attempt was made to relieve distress resulting from the elimination of the European market regardless of previous participation in United States imports.¹⁴ The basic quota for nonsignatory countries was apparently based on their 1938 exports to the United States.

¹¹ This provision was for the purpose of adjusting the supply of, and demand for, special types of coffee, and for meeting possible changes in demand for coffees of a particular origin in markets outside the United States. It was planned as a safeguard for United States roasters against shortages of certain blending coffees in that, if the United States did not favor a transference of the quota to outside markets, a unanimous vote of the 14 Latin-American countries would be required to put it into effect.

¹² Daniels, *op. cit.*, p. 714.

¹³ "The proceedings were long and difficult owing to the exacting demands of the small producers, who are not members of the Pan American Bureau and wanted to secure a high share." Teófilo de Andrade (of the National Coffee Department) in Brazil, Ministry of Foreign Affairs, *Brazil 1940/41*, p. 125.

¹⁴ Thus Costa Rica, for example, had a United States basic quota of 200,000

As such agreements go, the Inter-American Coffee Agreement was relatively simple. Perhaps this was due chiefly to the fact that the circumstances surrounding its consummation were abnormal, and many matters that might otherwise have been more difficult to adjust were rather quickly compromised.¹⁵ Under Article XVII, the "participating Governments agree to maintain, in so far as possible, the normal and usual operation of the coffee trade." The Agreement sought to prevent demoralization resulting from uncontrolled efforts of producers to sell in the only important remaining market.

The preamble of the Agreement refers to the object of "assuring terms of trade equitable for both producers and consumers by adjusting the supply to demand." The State Department's relevant release stated: "The Inter-American Agreement is an attempt to provide effective measures for bringing the supplies of coffee in the international markets more nearly in line with existing demand at prices which will be reasonable to both producers and consumers."¹⁶ A statement of policy made by the Inter-American Coffee Board, following its first meeting on April 17, 1941, pointed out the desirability of maintaining prices fair to producers, while at the same time maintaining them at levels which would encourage increased consumption.¹⁷

The Agreement itself said nothing specific about prices. The chief safeguard to American consumers lay in the authority granted in Article VIII, by which, "as an emergency measure," an unlimited increase in quotas could be ordered by a one-third vote of the Coffee Board, if "there should be foreseen an imminent shortage of coffee in the United States market in relation to its requirements." Inasmuch as the United States had 12 out of a total of 36 votes on the Board, the necessary power to declare an emergency situation, and act accordingly, rested with the consuming country. In effect, if prices were to go too high, the Board could raise the quotas, thereby

bags, though her exports to the United States amounted to only 96,000 in 1938/39 and 110,000 in 1939/40; and Venezuela, Haiti, Peru, and Honduras were permitted exports far in excess of their previous shipments to this market. Most of these countries normally found their principal outlets in Europe and were, consequently, more adversely affected than countries like Colombia or El Salvador, which had been sending a greater proportion of their exports to the United States.

¹⁵ One matter that worried the Brazilians, doubtless because of earlier experience, was how to make any agreement really binding and effective. The control over quotas was considered to be "one of the greatest difficulties," but this was solved by United States participation in the plan and the control of imports through customs. Another "serious difficulty" was the competition of colonial coffees. Andrade, *loc. cit.*

¹⁶ U.S. State Dept., *Bulletin*, Apr. 19, 1941, IV, 486.

¹⁷ Inter-American Coffee Board, *First Annual Report, 1941-42*, p. 58.

permitting supplies to increase. The increase in supply would thus presumably check an excessive rise in prices.

It was undoubtedly the expectation of all 15 signatories to the Agreement that prices would rise as the result of the quota arrangement. In fact, one objective of the plan was to raise prices so that coffee would again be profitable to producers. Largely for reasons of hemispheric defense policy, American consumers were to be made to give support to the coffee industry of Latin America. At the same time—to use the customary phraseology found in connection with most control schemes—prices were to be “fair” or “equitable” to consumers. But no criteria of fairness were set up, and no specific price objectives were publicly stated in connection with the Agreement.

RESCUE OF PRODUCERS BY UNITED STATES CONSUMERS

At the time the Inter-American Coffee Agreement was being implemented, United States coffee drinkers were not especially price-conscious. Retail coffee prices had been fairly stable for a number of years, supplies were plentiful, and it was common knowledge that huge stocks existed in Brazil and that coffee was being destroyed year after year. It was, therefore, somewhat puzzling to consumers to find their cost of coffee rising in 1941 in the face of abundant supplies. At this time war-created scarcities were expected for many commodities, and this meant higher prices, but with coffee it seemed that economic laws were being defied. Consumer protests were vigorous.¹⁸

The coffee trade of the United States, being better informed, generally conceded that green coffee prices had been forced too low in August and September 1940. Few, however, believed that they would have gone still lower if there had been no Agreement. Most roasters recognized that growers could not make a fair return under the extremely competitive conditions that prevailed for a while, but felt that it was only a matter of time before the situation would correct itself. They could find little justification for the extent of the price rise that followed. Yet prices were at a depressed level from which to advance, and stocks in the United States were low. As soon as it was apparent that the price trend would be upward, speculation made a sharp rise almost inevitable.

¹⁸ See Wickizer, *op. cit.*, pp. 182–83. Much of the narrative that follows has a parallel in events of almost a decade later, when circumstances economically were quite different, but politically the changes were small. See Chapter 6 on the United States Senate subcommittee investigation of 1949 and 1950, following the spectacular rise in coffee prices in the fall of 1949.

By September 1941 the Office of Price Administration was obliged to state that "complaints received . . . of advancing coffee prices have been increasing month by month. Prices for green coffee . . . have increased 80 to 100 percent since last October," and gave the factors mainly responsible as: (1) conditions brought about by the Agreement, (2) fears of a shipping shortage, (3) export controls by Latin-American governments, and (4) speculation in the United States.¹⁹

The price rise before Pearl Harbor.—Even before the Agreement was signed in late November 1940, coffee prices began to advance from their low August–September level in anticipation of the successful consummation of an agreement. At first the rise was gradual, but it was accelerated by the end of the year when Colombia took the lead in establishing and rapidly increasing the minimum prices at which she would export coffee. Early in 1941, when it was certain that the Agreement would be ratified by the United States, prices began the spectacular rise that culminated six months later.

Colombia, whose United States quota was fixed at a conservative level, set minimum prices in November 1940, and raised them a dozen times before the close of the first quarter of 1941. Brazil did not establish minimum prices until June 1941, but raised them in the following month. Both steps forced prices higher in the United States and called forth much criticism. By mid-1941, the newly formed Inter-American Coffee Board faced its first, and as it turned out, its only real test over the question of prices.

Buying policies adopted by the United States coffee trade also generated an abnormal amount of speculative activity. Coffee quotas were rapidly filled by heavy purchases which pushed the average spot price for Santos 4's on the New York market from a low of 6.75 cents per pound in August 1940 to a strikingly higher level of 13.4 cents a year later. Purchases in the later months of 1940 and early in 1941, and the price advance, apparently were but little influenced by the threat of a shipping shortage. That came later. The chief factor was the minimum export prices that were established and rapidly increased in producing countries.

Under the Agreement the imposition of quotas meant that only so much coffee could be sold, and growers were disposed to get the best price possible. If there had been no restrictions, stocks in the United States might have been built up more than they were. The low level of prices would have minimized the risks of importers, and the grow-

¹⁹ Office of Price Administration, *Consumer Prices*, Sept. 15, 1941, No. 16, p. 1.

ing uncertainties would have made heavy stocking advisable. As the months passed and the shipping situation became tighter, there was some feeling that the Agreement had prevented, and was preventing, the accumulation of stocks in the United States. As it was, the buying wave that followed the signing of the Agreement resulted in sales by several producing countries of their full quota within the first six months of the quota year that began October 1, 1940.²⁰

Early in 1941, when Santos 4's were selling at approximately 8 cents and Manizales at approximately 12 cents, the general trade opinion seems to have been that prices were high enough—that they had been restored to levels remunerative to growers but not too high for an expanding volume of coffee business in the United States. This level of prices was about two-thirds of that prevailing a few months later in July when the chairman of the Coffee Board stated that a further increase was unwarranted, and approximately three-fifths of the level at which Santos 4's were frozen at the close of 1941 after Pearl Harbor.

The attitude of official Washington also facilitated the coffee-price developments of this period. The government was extremely reluctant to offend Latin-American countries at such a critical time, and at home it was failing to deal vigorously with the problem of rapidly rising prices of farm products. Tacit approval of continued advances in coffee prices seemed quite inconsistent with a policy of attempting to freeze prices generally in order to quell growing fears of inflation. A publication of the U.S. Department of Agriculture stated hopefully that American consumers "may not notice a price increase that would be a real benefit to the Latin-American growers."²¹

The coffee-producing countries made the most of the situation, and encouraged the price rise. They could do this easily since no machinery was provided for control over prices during the time that elapsed while the Agreement was being ratified and before the Coffee Board could be set up.²² They named their own prices, and their

²⁰ By April 1, 1941, only 2.5 million bags of the Brazilian quota of 9.3 million bags remained unshipped. Stocks of green coffee in the United States increased rapidly, reaching an all-time peak. In mid-1941, at 6.5 million bags, they stood 2.4 million higher than at the same time a year earlier. Most of the supply was thought to be in the hands of large dealers, but small roasters bid prices up in an effort to secure the growths needed to carry on their business. Agitation for raising the quota limits began, and resulted in affirmative action before the last of the participating countries had ratified the Agreement.

²¹ J. B. Gibbs, "The Inter-American Coffee Agreement," *Foreign Agriculture*, April 1941, V, 170.

²² At first propaganda emanating from the South was confined to a justification for increased coffee prices, comparisons usually being made with the abnormally

actions were generally considered to be responsible for the rapid mid-1941 price advance and consequent disturbances in the United States coffee market.

As the threat of a shipping shortage grew, the Inter-American Coffee Board, late in May 1941, voted to increase quotas by 5 percent and authorized additional exports up to 15 percent of basic quotas for consumption after October. But this was not enough to discourage the price rise. The action of Brazil in following Colombia's lead in establishing and increasing minimum export prices in June and July convinced the Board of the need for stronger measures. Paul C. Daniels, United States delegate, stated that under current conditions any increase in prices above present levels was unwarranted. Whereupon the United States exercised its right under Article VIII of the Agreement to declare an emergency, and in August the Board voted a 20 percent quota increase, which remained in effect through October 23.²³

The text of the Board's resolution in raising the United States quota in August refers to "official acts not contemplated in the Inter-American Agreement" and also to stocks in the United States believed to be closely held, partly for speculative purposes.²⁴ The Board's action in raising the quotas checked the advance, and in fact prices tended to ease as the trade became increasingly confused in September and October. There was much uncertainty as to how the differences between the viewpoints of the United States and the Latin-American producing countries would be resolved. On the one hand, the coffee growers appeared to feel that they could, under the circumstances, exact almost any price for coffee they wanted. On the other, the United States did not wish to disturb relations with the countries to the south, but nevertheless showed no disposition to be exploited without limit.

high level of 1924-29. As prices continued to rise, and as Colombia and Brazil established and successively raised the minimum prices at which they would export coffee, further justification was sought for the efforts being made to force coffee prices still higher. For example, the president of the National Coffee Department explained that it was necessary for Brazil to take such action because Colombia did, and pointed out that the rise in coffee prices in the United States was modest in comparison with the rise in the prices of such commodities as lard, butter, cheese, flour, and rice. See Wickizer, *op. cit.*, pp. 184-85, 196.

²³ The effect of the two quota increases was to authorize additional coffee imports into the United States of 710,000 bags during the first quota year, or a total of 16.6 million bags. Actual imports for consumption totaled nearly 16.7 million, and at the beginning of the second quota year imports were authorized at the rate of 19.3 million bags annually (125 percent of basic quotas, plus deficiencies and less excesses of imports over quotas at the end of the first quota year).

²⁴ Inter-American Coffee Board, *First Annual Report, 1941-42*, pp. 92-93.

At the October 23 meeting of the Board, however, the 1941/42 United States quota was set at 17,550,225 bags, a reduction to 110 percent of the basic quota, and a reassuring statement was issued to the effect that any misunderstandings that had existed had been cleared up and the success of the Inter-American Coffee Agreement was assured. This followed a declaration of policy by the Board "to the effect that minimum prices would not be used in such a way as to control market prices or prevent normal fluctuations in the market."²⁵ November was uneventful. Then came the United States entry into the war with the attack on Pearl Harbor, December 7. Four days later the OPA established tentative price schedules for coffee as well as for many other items. These were revised as of December 29. The Manizales top was placed at $15\frac{7}{8}$ cents per pound and Santos No. 4 at $13\frac{3}{8}$ cents, a differential of $2\frac{1}{2}$ cents, approximately that prevailing before the freezing order.

The Inter-American Coffee Agreement made no mention of prices, price levels, or price objectives, but the Coffee Board went on record as favoring "reasonable" prices that would be "fair" to both producers and consumers and would "encourage consumption."

The only specific official reference that might be interpreted as a definition of a price level that would meet these requirements was the statement made in July 1941 by Paul C. Daniels of the State Department, then chairman of the Inter-American Coffee Board, to the effect that "under present conditions" a further increase in coffee prices was unwarranted. Santos 4's, fixed by Brazil at 10.5 cents f.o.b., were then selling ex-dock New York at 11.7 cents. In December of the same year, when the OPA established maximum prices, the ceiling for the Santos 4 grade was set at $13\frac{3}{8}$ cents a pound. If 11.7 cents can be considered the upper limit of "fair" under conditions in July, by implication prices in December, and perhaps subsequently, were "unfair" to consumers to the extent that they were above this level, unless conditions had been greatly altered in the interim.²⁶

Actually, a Santos 4 price of 11.7 cents was higher than any annual average price for this grade in the 10 years 1931-40. The level at which coffee prices were frozen was approximately double

²⁵ Daniels, *loc. cit.*

²⁶ The conditions undoubtedly referred to in July were those causing difficulties for some roasters because of the rapidity of the advance, whereas stability of prices is always more conducive to profitable operations. Prices were far more stable at the end of the year, and this was helpful to roasters. Such stability as was achieved at the higher level, however, was not necessarily in the best interests of ultimate consumers or perhaps those of the trade.

the low prices of August–September 1940, some 86 percent higher than 1940 average prices, 55 percent higher than the 1936–40 average, 45 percent higher than the 1931–40 average,²⁷ and a little more than three-fifths of the abnormally high level that prevailed between 1924 and 1929.

Significance of the Coffee Agreement. — After the outbreak of war in Europe many common interests drew the Americas closer together, especially in 1940 after the invasion of the Low Countries. New economic and political relationships were soon established. The importance of coffee in the economies of Latin-American producing countries, and to United States consumers, made it a logical first choice of commodities to come within the numerous wartime Inter-American understandings. Among these practical efforts in economic co-operation the Coffee Agreement was perhaps most outstanding.

So much of the world's coffee had long been grown in Brazil that problems of the industry in the past were largely Brazilian problems. But as production expanded in neighboring countries to the north, such as Colombia, they broadened in scope. When the Continental market was closed to all Latin-American producers alike, it was at a time when the United States found it highly desirable to further strengthen ties with its southern neighbors. Thus, under the stress of war and for reasons of national interest, the essentially conflicting objectives of coffee producers and consumers were resolved in a quite new manner.

The Inter-American Coffee Agreement should be regarded primarily as a political measure devised to meet pressing problems arising from war. It was a pact dependent upon United States generosity. The Agreement in operation was outstandingly successful in improving the wartime position of coffee producers, but contributed very little toward the solution of fundamental problems of the world coffee economy.

The striking increase in coffee prices after August 1940 meant far greater financial returns to growers, but the cost of coffee to the

²⁷ The average import price of all coffees entering the United States during the 1930's was about 8 cents a pound. A 45 percent rise above this level amounted to 72 million dollars annually at the average rate of importation for the three years 1938–40. Under the Agreement basic import quotas were set higher than this rate, and imports broke previous records until a shortage of shipping intervened.

This is not to say that the 1930's constitute a period of "normal" coffee prices. There is, in fact, no period in the coffee history of the past several decades that can be described as "normal." Attempts to relate coffee prices to the 1926 or 1925–29 level, or even an average level of 30 to 50 years, however, are totally irrelevant in measuring whatever obligation the United States may have had to relieve distress in Latin-American producing countries *arising from war dislocations.*

American consumer was markedly increased, certainly by more than would have occurred without the Agreement.²⁸ In operation, it was highly successful in assuring Latin-American adherence to United States political objectives, and it introduced into the coffee market certain elements of stability that had been lacking.

Bringing the trade war to an end in 1940 was in itself of great value to producing countries; restoring prices to the previous levels in the face of continued surpluses was highly beneficial; but promoting a further price rise involved a virtual subsidy by the United States. Coffee prices approximately 100 percent higher than prevailed in the months before the Agreement meant that half the former export volume could be sold to produce the same financial return.

The necessity for so much generosity on the part of the United States was questioned at the time. Something more than a gesture of good will was undoubtedly politically necessary. Putting a floor under prices, perhaps somewhat above the minima to which they had fallen, was probably essential. However, it seems clear that the economic diplomacy was conducted without adequate regard to the financial burdens that would be imposed on the United States, to the other contributions to Latin-American economies that the war program would entail, or to the danger of creating boom conditions in the exporting countries.

Any conception of a "fair" price to producers and consumers must, of course, be related to conditions existing at any particular time. What might have been fair at the outset of the Agreement was undoubtedly no longer fair, appropriate, or desirable a few years later. But part of the reason for the changed conditions was the handling of the initial problem by United States authorities. After consummation of the coffee pact, many other steps were taken to fortify Latin-American economies, gain for the United States certain badly needed strategic materials, and provide countries to the south with funds and equipment necessary to strengthen their own positions.²⁹ When coffee sales were the chief source of Latin-American foreign exchange, one policy with regard to prices was appropriate, but after the flow of exports of other products needed in the United

²⁸ Many observers agreed with S. G. Hanson that ". . . the device was one of the most costly ventures for the American consumer ever agreed to by the Congress and acceptable only as wartime sacrifice." *Inter-American Economic Affairs*, March 1948, p. 51.

²⁹ At the opening of 1943 the United States was reported already to have been committed to finance the "industrial and agricultural revolution" in Latin America to the extent of approximately 2 billion dollars. *United States News* (Washington, D.C.), Feb. 19, 1943, p. 20.

States began, there no longer existed the same necessity for "subsidizing" coffee exports at the expense of American consumers.

Under the pressure of war and the urgency of collaborative measures, the United States helped to create conditions in some countries that gave rise to serious repercussions later. Rather than the severe hardship envisaged for Latin America in 1940, there was an unexpected prosperity bordering on boom conditions. That booms did not develop in some places was due solely to the inability to make foreign purchases and secure delivery.³⁰ The short-run effects of the Inter-American Coffee Agreement were extremely beneficial to producing countries; the long-run effects may well have been adverse.

While designed initially to meet an immediate crisis due to war dislocations, the Agreement was viewed, especially in producing circles, as a mode of attack on the underlying problems of the coffee industry. In retrospect this hope appears to have been insecurely founded (see Chapter 18). The Agreement could not, nor was it designed to, contribute to the solution of long-standing difficulties such as overproduction. It did stabilize prices in one sense, and it did set up the machinery that had been lacking for facilitating cooperation among Latin-American producing countries. But it was essentially a stop-gap measure, an arrangement that was made possible and one that functioned only because of the willingness of the United States to bear the bulk of the burden.

WARTIME GOVERNMENT CONTROLS

Controls imposed on the international coffee trade because of the war were general in both producing and consuming countries. Except for inter-American trade, however, these are of little interest today. For all practical purposes world trade in coffee was soon brought to a standstill except in the Western Hemisphere. Although some supplies reached the European market from African and Asiatic colonial producers early in the war, and scattered coffee markets throughout the world managed to secure occasional shipments under various circumstances, the main wartime story of coffee is largely confined to the Americas.

In another sense, of course, the coffee privation in Europe is an important part of the wartime story. Only the United Kingdom, a minor prewar coffee importer, received greater supplies than before.³¹

³⁰ Latin-American countries created export balances in their trade with the United States that reached a peak of nearly \$5 billion by 1946 but thereafter rapidly declined.

³¹ Outside Europe some of the other minor coffee-importing countries, such as

The two principal importers, France and Germany, were able to import only a small fraction of the coffee purchased earlier. The neutrals, Sweden, Switzerland, and Spain, managed to secure some supplies but they were on a greatly reduced scale. After 1940 the import record (Appendix Table III) shows practically no coffee received in most of the other countries of Europe. Coffee-drinkers resorted to a great variety of substitutes but there is no record of the volume of such products consumed during the war years.³²

The postwar significance of wartime controls over coffee is essentially limited to developments in a few Latin-American countries and in the United States. Even the practical elimination of some sources of supply, e.g., the Netherlands Indies, did not alter the postwar coffee situation as it did for example with tea. Controls were necessary under the Inter-American Coffee Agreement, both in producing countries and in the United States. These, however, were principally a matter of controlling the flow of marketings. After the United States entered the war, a variety of controls over the economy became necessary and many of these affected the coffee industry. The few that were influential in shaping the postwar world coffee economy, such as price and shipping controls, deserve most attention now.³³

Price controls in the United States.—Coffee prices in the world's leading market, New York, have long reflected the condition of the coffee economy. After falling sharply in late 1937 when Brazil's new coffee policy became effective, they reached their lowest point about three years later when Latin-American producers lost their European markets because of the war. The spectacular recovery in 1941, following the agreement on quotas, left prices some 40–50 percent above those prevailing over the previous decade. Frozen at this level upon the United States' entry into the war at the close of 1941, world coffee prices were in effect set for the next few years by the world's largest market.

Yet the maximum prices fixed by the OPA in the United States were high at the time and were even regarded by producers as "satis-

Canada, Argentina, Union of South Africa, and Egypt, also increased their takings. In most instances this reflected the shortage in tea supplies.

³² See Chapter 17 for a discussion of some of the wartime and postwar developments in beverage consumption in Europe.

³³ A short summary of United States government controls over coffee during the war will be found in U.S. Dept. Comm., Industrial Reference Service, *United States Trade in Coffee, Tea, and Cocoa Beans, 1935–45* (Part 5, December 1946), pp. 2–3, prepared by Alice M. Taylor.

factory." As the war progressed and world price levels rose, these fixed prices for coffee came to be regarded as unsatisfactory by producers, and agitation for relief was persistent during the later years of the war. It was not until October 1946, over a year after V-J Day, that all coffee market controls were abolished, although they had been modified earlier. When ceilings were finally eliminated, coffee prices rose sharply, along with prices of many other imported commodities decontrolled at about the same time.

Maximum coffee prices in the United States were fixed at levels which remained unchanged for a period of over four years, despite pressures during about half this period to have them raised. Price freezing in December 1941 removed the price problem from the jurisdiction of the Inter-American Coffee Board and turned it over to the OPA. This was only a short time after the settlement of the issue over minimum prices in October. Fixing of prices, however, did not prevent producers from setting their minimum export prices at the established OPA maximum, thus leaving no margin for the trade on which to conduct a solvent business.

When the supply of Brazils was drastically reduced by the shipping stringency of 1942, coffee roasters who had not been large users of mild coffees were forced to alter their blends, using whatever growths could be secured from nearer supply sources. Because of the great variety in grades of mild coffee and less standardization of prices than for Brazils, these roasters found it difficult to maintain their over-all blend costs. They had to contend with rising labor and material expenses, higher green coffee costs, ceilings on sale prices, and reduced volume over which to distribute overhead—all of which made for uncertain and fluctuating production costs and very doubtful profits. Generally they felt that they were absorbing too much of the rise in coffee prices. Many favored an upward revision of the OPA schedules as the only solution under the circumstances.

Perhaps United States government wartime price controls on coffee had more important residual effects than all other controls, even including those necessitated by the scarcity of shipping. The reasons for this seem to lie in two directions: (1) freezing commodity prices generally by formula made no allowance for the relatively high coffee price level existing at the time and, although producers were happy for a while, they lacked competitive incentives, and willingly accepted to their own detriment what amounted to artificial subsidies; and (2) once prices were established at what came to be regarded as too high a level, general pricing policy would not permit sufficient

flexibility in ceilings later on to encourage maintenance of output under new conditions partially caused by developments of 1940-41. The exact degree of importance to be attached to unwise handling of the coffee price problem is difficult to determine, yet it seems certain in retrospect that some of coffee's postwar problems would not have been so acute if different courses had been followed.

In August 1942 the OPA amended its earlier price schedules and fixed ceilings on approximately 200 grades and types of coffee, thereby greatly expanding the original list in order to eliminate confusion about "customary price differentials in effect prior to December 8, 1941."³⁴ An arrangement was also effected whereby the Commodity Credit Corporation was to absorb added costs incurred by coffee roasters since December 7 on war risk and marine insurance, ocean freight surcharge rates, and 75 percent of the inland freight costs due to steamer deviations to southern ports. Price Administrator Henderson declared that this action had "averted a severe squeeze on the coffee industry."³⁵

Disrupting effects of the most acute period of shipping shortage occurred in 1942 but by mid-1943 the situation was sufficiently improved that a good case could be made for a downward adjustment of coffee prices. Within a few months, however, the agitation began for raising ceilings, an agitation which was to continue without interruption for the duration of the war. In fact, in late 1943, shipments from producing countries began to fall off in anticipation of an increase in price ceilings, an early end of the war, and the reopening of the European market. It became necessary for United States coffee interests once more to recognize the effect of speculative withholding in producing countries.³⁶

³⁴ Prices of coffees not listed on the early schedules were determined by their "customary" relationship to the 39 upon which maximum prices were fixed.

³⁵ OWI-OPA press release, Aug. 10, 1942.

³⁶ How far these developments were from what the situation seemed to demand in mid-1943 is suggested by the following: Sharp reduction in shipping losses in May-June, and continued rise in output of new vessels, had tempered the extreme shipping stringency. Coffee imports increased so much that coffee stocks returned to normal, rations were enlarged, and finally on July 29 coffee rationing, which became necessary late in 1940, was suspended. Meanwhile, labor leaders insisted that the cost of living be reduced to the level of mid-September 1942, or that the "Little Steel formula" be thrown overboard and wage rates raised. On April 8 the President issued a "hold-the-line" order with respect to prices and wages. Within a few weeks the OPA announced plans to "roll back" retail prices of meat, butter, and coffee about 10 percent, using subsidies to processors. The meat and butter rollbacks were made effective June 10 and 21 respectively. The scheme for coffee was vigorously opposed as administratively cumbersome and expensive, and as promising insignificant savings to consumers; in July it was shelved.

With coffee stocks in the United States adequate, rationing ended, and Latin-American supplies greater than the market could absorb, some easing of prices would have been a logical expectation. Instead, producing countries—particularly Brazil—began to withhold shipments in order to force higher prices. Producers were fairly confident that since American consumers had been assured that rationing would not be resumed, they were in a strong position to get a price increase.³⁷

By early 1944 United States stocks had fallen to a level that threatened to become critical, and means were sought to increase imports. Speculation on an OPA raise of ceilings resulted in prices in producing countries going above the established ceilings, and trading came to a standstill.

In its annual report for the third quota year, the Coffee Board stated that “although the movement of coffee to the United States was . . . to a certain extent affected by a growing feeling in the producing countries that United States ceiling prices should be raised, adequate total quantities of coffee were nevertheless shipped. . . .”³⁸ Quotas were raised, but not on an emergency basis, after the Brazilian government agreed in July to facilitate substantial shipments to the United States.

During the fourth quota year, 1944/45, several attempts were made by producer interests to secure higher price ceilings in the United States, and the Pan-American Coffee Bureau advocated the elimination of all wartime controls on coffee. The Inter-American Coffee Board’s annual report referred to ceiling prices as being subject to “increasing pressure from rising costs of production,” cited unsuccessful efforts to have them raised, and observed that “delegates of the producing countries did not consider the question of price ceilings closed.”³⁹ Finally, the following quota year, and after the end of the war, relief came in the form of a subsidy program for imports and two successive increases in ceiling prices (pp. 122–24).

EFFECTS OF THE WARTIME SHIPPING SHORTAGE

Second only in significance to economic and political developments, ultimately expressed in the wartime price of coffee in the United States, was the control and allocation of available shipping

³⁷ U.S. Office of Price Administration, *Studies in Food Rationing*, by Judith Russell and Renee Fantin (Historical Reports on War Administration, Gen. Publ. 13, 1947), p. 45; hereafter cited as OPA, *Studies in Food Rationing*.

³⁸ Inter-American Coffee Board, *Third Annual Report, 1943–44*, p. 3.

³⁹ Inter-American Coffee Board, *Fourth Annual Report, 1944–45*, pp. 10–12.

in the interests of furthering the war effort. Enormous demands for overseas transport, coupled with stupendous losses from the German submarine campaigns, created a stringency not easily or quickly overcome. The "Battle of the Atlantic" made most European markets inaccessible and, for about one and one-half years following Pearl Harbor, disrupted the flow of coffee to the United States from Latin America, especially from Brazil.

Importance attaches to the chance developments of war at sea because they accentuated trends in the coffee economy already long in evidence. It was expected early in the war that, for the first time, the mild-producing countries would be obliged to accumulate stocks. Instead, the interruption of the flow of coffee from Brazil, particularly in 1942, was enough to clean out the supplies of producers bordering on the Caribbean. The "deficit" in flavor coffees was not made up even after the war had ended. Demand for milds in the United States was stimulated even further by developments which, for a time, made these coffees about the only ones available. The result was that Brazil continued to be the principal holder of stocks.

The shipping situation became highly critical in the spring and summer of 1942, and the difficulties of ocean communication between Latin America and the United States multiplied. Prior to United States entry into the war, German submarine activity had been confined to European coastal waters, later extended to the west coast of Africa, then to the mid-Atlantic, both north and south. Shortly after Pearl Harbor, however, the U-boat campaign was shifted to the Atlantic Coast of North America and the Caribbean area (January 1942 to July 1942). Then from August 1942 to May 1943, as the battle spread, the scene of greatest activity again shifted (Map 4). It became less marked in the Western Atlantic, except in the Caribbean and the north and east coasts of South America where it was relatively more intense. By mid-1943 the worst danger from submarines had passed, and convoys in great number made successful passages.

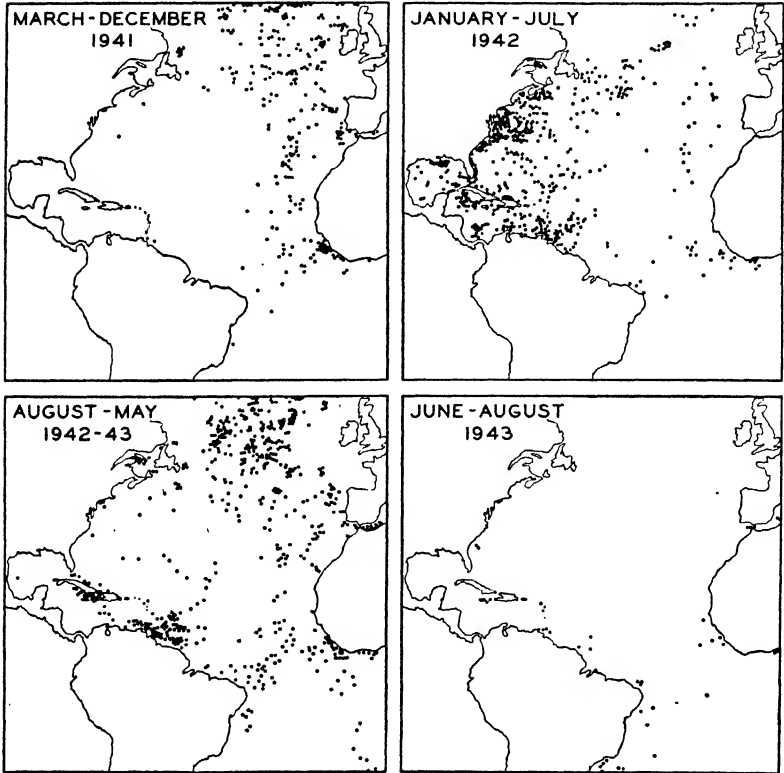
In April 1942, however, the probable need for coffee rationing in the United States was much discussed. In order to conserve supplies, the War Production Board placed restrictions on internal distribution and the Inter-American Coffee Board removed them on shipments from abroad to the United States for storage. Under the WPB order, deliveries, with certain exceptions, were limited to 75 percent of those for the corresponding period in 1941.

In July the Coffee Board again boosted the United States quota

to approximately 134 percent of the basic quota, but announced that this was an emergency increase and that quotas would be adjusted to 110 percent at the beginning of the next quota year. This action was to permit the release of impounded stocks into consumption channels and additional shipments from countries that had already filled their quotas.

The WPB announced an additional reduction of 10 percent, effective September 1, in the amount of coffee available to consumers. Distributors' allotments thereby became 65 percent of the average monthly amount of coffee handled during the corresponding quarter in 1941.

MAP 4.—THE BATTLE OF THE ATLANTIC, ALLIED SHIPPING LOSSES, MID-MARCH 1941 TO AUGUST 1943*



* Adapted from Great Britain, Central Office of Information, *The Battle of the Atlantic* (1946).

In September the Inter-American Coffee Board fixed the United States quota for 1942/43 at 19,330,115 bags for the participating countries and 390,500 bags for others, or a total of 19,720,615 bags. This figure was nearly 5 million bags higher than the actual 14,922,880 bags imported for consumption during the 1941/42 quota year, but was less than a half million bag increase over actual imports from countries other than Brazil.

The WPB reduction in allowable deliveries within the United States soon created regional shortages, for aggregate consumption had not been curtailed by a corresponding amount. Although stocks were drawn upon, coffee became scarce in parts of the United States and consumer hoarding increased. Rationing was advocated by some distributors and by other groups, while the trade in general hoped to avoid it. Finally, the OPA announced late in October that coffee would be rationed beginning November 29. Thereupon abnormally heavy consumer purchases quickly exhausted retailers' stocks.

Coffee rationing.—Short supplies and complaints of consumers made the rationing of coffee necessary for an 8-month period between late November 1942 and late July 1943. Shipping uncertainties had increased as the submarine campaign in the Atlantic and Caribbean was intensified, stocks in the United States were dwindling rapidly, and many consumers were unable to secure their share of available supplies. Inasmuch as rationed commodities received preference on the limited shipping space available, it seemed necessary to ration for this reason alone, if the movement of coffee was to continue.

Coffee rationing temporarily changed the buying and use habits of many drinkers, with effects on the trade, but otherwise was merely an episode without great significance.⁴⁰ The official account of the coffee-rationing experience notes the "trading up" by consumers and the adverse effects on the sales of chain-store brands. It also comments on the unique features of the coffee-rationing program, its simplicity, and the ease with which it could be administered.⁴¹

⁴⁰ Perhaps most interesting is the importance coffee drinkers attached to the beverage. A Gallup Poll in April 1943 indicated that of all rationed items only meat was considered by consumers to be more important. Under rationing some adjustments in consumer habits were inevitable. Adulterants and "stretchers" were used, brews often were weak, and waste was certainly reduced, but it seems doubtful that the period of rationing was sufficiently long to permanently alter the habits of many consumers, as apparently happened in Great Britain under more than a decade of tea rationing.

⁴¹ See OPA, *Studies in Food Rationing*, Part I, p. 57. Factors making for simplicity and ease of administration of the coffee-rationing program were as follows: the entire supply was imported so that the total tonnage involved was definitely

The coffee ration in the United States was fixed at one pound every five weeks for persons 15 years of age and over, equivalent roughly to one cup per day. On a per capita basis this amounted to 10.4 pounds annually. Per capita imports of green coffee, adjusted to a roasted-coffee basis, for persons 15 years and over, had amounted to 12.6 pounds in the census year 1900; 14.5 pounds in 1920; 15.2 pounds in 1930; and 17.4 pounds in 1940.⁴²

Under coffee rationing, it was estimated that United States imports would be reduced 37–38 percent. Such reduction would inevitably accentuate the storage congestion in some producing countries. Santos warehouses were reported already full. As the situation developed, the reduction in shipments was not uniform. Colombian and Central American mild producers were able to ship in increasing volume, while Brazil was obliged to resort to additional storage. This put a strain on storage facilities, even though Brazil was better able to handle surpluses than any other country.

United States assistance to producers.—To compensate countries that were unable to ship their quotas, the United States undertook to purchase and store coffee that would have been permitted entry under the Agreement. The Commodity Credit Corporation purchased the entire unshipped portion of Brazil's 1941/42 United States quota (2,659,279 bags) and guaranteed to purchase an amount equal to the unshipped portion of the basic quota of 9.3 million bags of the 1942/43 quota coffee. The United States thus alone assumed the burden of recently accumulated stocks.

Despite the fact that Brazil was compensated for her inability to export, Brazilian growers worried over the possible adverse effects of this development on the postwar United States market. Blends had to be altered to include more mild coffees in order to make use of the supplies available. As early as the summer of 1942, Brazilian producers advocated an agreement with the United States that would assure the maintenance of the prewar ratio of imports between Brazils and milds.

For all practical purposes the availability of shipping came to be the limiting factor in coffee imports into the United States. Quotas

known; there was no important substitute for coffee, and industrial use was negligible, so that handling supplies for purposes other than direct consumption was never a problem; about 80 percent of total use was in the home and the remainder almost entirely in restaurants and other institutional users; practically all coffee was sold roasted and ground in 1-pound packages thus providing a simple, single unit for transfer; and, finally, rationing lasted only 8 months and toward the end of the period the ration was only slightly below normal consumption requirements.

⁴² *Foreign Commerce Weekly*, Nov. 21, 1942, p. 21.

were set high so that coffee could be shipped from wherever bottoms could be found.⁴³ A resolution of the Coffee Board in March 1943 set the United States quota for the remainder of the quota year at 200 percent of the basic quota.⁴⁴ By mid-1943, the situation was no longer critical and rationing was ended.

Upon the termination of coffee rationing, official assurances were given that the OPA would not ration again, whereupon producers, especially in Brazil, proceeded to hold back shipments for higher prices. Exporters quoted prices at or above United States ceilings, purchases fell off, stocks in the United States declined, and in 1944 it seemed that rationing might again become necessary. The attempt by producing countries to break the OPA ceilings failed, and the threat of rationing brought an agreement with Brazil in July to sell regular quantities for the remainder of the year.

The Brazilian government apparently found it difficult to keep the agreement, sales were still slow and stocks continued to fall in the United States. Alarmed, the coffee trade met in September to find a solution. When it became apparent that ceilings would not be raised or controls removed, and coffee rationing was ordered resumed, the State Department got quick action on an agreement with Brazil that would assure adequate shipments and avoid rationing, at least temporarily. Conditions remained unsettled, however, and the stocks position, while safe, was not noticeably improved. In lieu of a price increase to encourage shipments of coffee to the United States, a subsidy program was worked out in November 1945, and ceilings were finally raised the following year before coffee was decontrolled.

ANTICIPATED POSTWAR PROBLEMS

A major problem of the postwar transition period was generally expected to be the orderly disposition of accumulated coffee stocks.

⁴³ The shipping situation inspired a number of schemes for getting coffee from Latin-American producing countries to the United States market. These ranged from the development of a fleet of sailing ships for use in the Caribbean to converting coffee into a dehydrated product in producing countries.

⁴⁴ Since the quotas under the Agreement no longer had any practical significance and the OPA had already become the arbiter of coffee prices in the United States, the operation of the Inter-American Coffee Agreement was necessarily radically modified. The Coffee Board, however, was in a position to function as a common meeting ground for all the various governmental and private interests concerned with coffee in the Western Hemisphere. As such it concerned itself with many matters affecting both coffee-producing countries and the trade in the United States. It recommended an extension of the Agreement without modification for a period of one year, and in late April 1943 the Board announced the participating countries had unanimously decided to extend the Agreement from October 1, 1943, as recommended, because it had "operated so successfully."

When the Inter-American Coffee Agreement was drafted, it was anticipated that coffee surpluses would be found in most of the producing countries at the end of the war.⁴⁵ As it turned out, the surplus problem was still largely confined to Brazil and its magnitude was not as great as visualized earlier, owing to a series of short crops. Meanwhile the United States had assumed at least a moral obligation to continue to bear some of the burden of the surplus.

There were some observers of the coffee scene, however, who as early as 1939 began to count upon smaller crops to bring adjustments in the world coffee situation. Even before the weather experiences in Brazil (droughts in 1940 and 1941, frosts in 1942), which materially affected the size of crops, doubts were entertained about future trends in production.

There are many who believe that Brazil's crops are due to shrink at a rapid pace in the next few years. Many millions of trees have either been uprooted or abandoned over the past seven or eight years. Cultivation has been sketchy because of lack of funds and the need for labor for the expanded cotton and citrus fruit production. Less fertilizer has been used and other products have been planted between trees—as part payment to the laborers—and have drawn from the ground certain essentials needed by the coffee trees.⁴⁶

While it was undoubtedly true that Brazilian production was then at a considerably lower annual rate, the crops of the early 1940's could hardly be termed "normal." Furthermore, new planting seems to have started in some of the mild coffee-producing countries under the stimulus of favorable prices and marketing conditions; and beginning July 1, 1943, new planting was permitted in Brazil after having been prohibited, with certain exceptions, since 1932. By that time, however, inflation in Brazil seems to have made new planting unattractive at the existing frozen level of coffee prices.

⁴⁵ Article XI of the Agreement directed that the Coffee Board should undertake as soon as possible "a study of the problem of coffee surpluses in the producing countries participating and shall also take appropriate steps with a view to working out satisfactory methods of financing the storage of such surpluses in cases where such action is urgently needed to stabilize the coffee industry." Although this directive was limited, vague, and hedged, it seemed reasonable to assume that its intent was to make the Board contribute toward, if not be responsible for, solving the surplus problem. Eight years later the Board issued its report and concluded that there was no longer a surplus problem or any immediate prospects of one.

⁴⁶ Commodity Research Bur., *Commodity Year Book, 1939*, p. 306. At the 1942 convention of the National Coffee Association, one speaker expressed his conviction that at the end of the war the world would face a shortage of coffee, an opinion based upon assumptions of increased postwar demand and lowered production capacity. G. G. Paton, "Postwar Coffee Prospects," *Excerpts from Proceedings, Annual Convention, The National Coffee Association* (Hot Springs, Va., 1942), pp. 38-39.

In the early years of the war the coffee authorities in Brazil were still attempting to cope with unfinished business of the 1930's. The new situation created by the war led many growers in 1940 to advocate another valorization scheme. Instead, Brazil adopted with reference to the 1940/41 crop a "principle of maintaining the statistical equilibrium between export possibilities and the quantity to be released on the market."⁴⁷ It was estimated that almost 11 million bags needed to be withdrawn from the market and, if this were done, the carry-over as of mid-1941 would amount to a little over 6 million bags. The severe drought of 1940 was counted upon to reduce stocks by another 2 or 3 million bags and was expected also to affect the 1941/42 crop.

After 1937 the rate of coffee destruction in Brazil had tapered off considerably. Over 3.4 million bags were burned in 1941, but this was not enough to establish the statistical equilibrium desired, and stocks of 9.2 million bags were forecast as of mid-1942. The equilibrium quota for 1941/42 was therefore increased to 35 percent. Exports for the second quota year under the Inter-American Coffee Agreement (1941/42) fell to 7.4 million bags as against 10.3 million for 1940/41.

Frosts of late June and early July 1942, described as the "worst since 1918," resulted in revising estimates of the 1942/43 São Paulo crop downward from 13-15 million bags to 7 or 8 million, and the crop of Paraná from about 2 million to 250,000-500,000 bags.⁴⁸ However, as has often happened in the past, the frost damage turned out to be less than anticipated, and the flowering of the coffee trees in the fall of 1942 was excellent, indicating good prospects for the next crop.

Despite the confusing and conflicting crop reports of recent

⁴⁷ Andrade, *op. cit.*, p. 124. Part of the crop was to be withdrawn from the market as before, but the former sacrifice quotas were now called by a different name as it was not necessarily the current crop that would be destroyed. Fixing a "general quota of equilibrium" at 25 percent on all production, except that of a few small states, meant that one-fourth of the crop was to be delivered to the DNC on payment of a nominal sum per bag. A "supplementary rate" of 30 percent was to be imposed on the São Paulo crop, since national overproduction originated principally in that state.

⁴⁸ But the equilibrium quota for 1942/43 was again set at 35 percent, though in view of the heavy drought and frost damage in São Paulo and Paraná these states were exempt from full applicability. Practically all of the young trees (1-3 years old) were reported killed in São Paulo and Paraná, and many older trees were so badly frozen that they were not expected to produce their usual output for two or three years.

years,⁴⁹ it appeared that at long last the corrective action of Nature was taking a hand in the Brazilian coffee situation. The prospect of further adding to surpluses was greatly reduced. Chance and indifference had made the troublesome problem of surpluses primarily the continued concern of Brazilian growers, rather than a problem common to most other coffee-producing countries as well.

Forebodings, real or imaginary, primarily emanating from Brazilian coffee interests, created much discussion and controversy before the war was over. The Brazilians wanted assurances of one kind or another, assurances that could not be obtained on a co-operative basis from rival producers but only from the United States. Questions were raised as to the proper form of assistance the United States might provide in helping to carry stocks, the extent to which continued subsidies via purchasing agreements were justified, the ultimate postwar disposition of stocks so as to offer minimum disturbance to regular markets, the proper role of governments, government agencies, the Inter-American Coffee Board, and so on.⁵⁰ The competitive threat of African dependencies, especially in the European market, was also a cause for concern.

Other problems destined to confront the coffee industry in the postwar transition period obviously called for a co-operative solution. The notable prewar and wartime increase in coffee consumption in the United States, for example, could not be taken for granted. Special circumstances accounted for these gains; it was imperative to understand the circumstances and to attempt to consolidate the gains. If coffee-pricing policies were reasonable and consumer incomes were

⁴⁹ Crops may have been officially overestimated originally in order to make grower acceptance of high equilibrium (sacrifice) quotas more palatable. The production and stocks situation in Brazil during recent years is by no means clear. There is an undercurrent of suspicion that inconsistencies in official and semiofficial reports are more than accidental, and that a certain vagueness may be a deliberate policy of the control authorities. Improvement in Brazilian coffee statistics is important from several viewpoints (see pp. 147-52).

⁵⁰ A discussion of a number of these questions, reflecting wartime thinking, will be found in Wickizer, *op. cit.*, pp. 208 ff. The Brazilians had other worries related to wartime shipping developments. In view of the progress that mild coffees made during the interwar period, Brazilian fears that the forced change in blends might permanently alter consumer tastes were exaggerated but not entirely without foundation. Although mild coffees are in general more flavorful and of better quality, the chief reason for the earlier shift in preference in the United States market was not that coffee drinkers suddenly became aware of differences between Brazils and milds. Rather it was a case of blenders' being able to improve their product at small extra cost because of the slight price differential that prevailed for some time between Brazils and milds. There seems little doubt that Brazilian coffees can maintain their position in popular-priced blends if they are continuously available in volume at favorable prices.

maintained at a high level, there was no apparent reason why increased coffee consumption in the United States could not be continued.⁵¹

Outside the United States it was reasonable to hope that, in the process of rebuilding Europe economically and politically, attempts would be made to free the Continent from many of the restrictions to trade prevalent in the 1930's. If this were achieved, coffee exports would undoubtedly be stimulated and the problem of coping with surplus stocks eased. Use would be found for the producing capacity that was excessive in relation to actual consumption both before and during the war.

Hopes or expectations regarding the postwar coffee situation were too optimistic in some respects and too pessimistic in others, as shown in the chapter that follows. On the whole, errors of appraisal were chiefly in timing and extent rather than direction of change. The entire coffee industry became restless under controls, especially after the war ended, but fortunately early decontrol did not precipitate disorganization of markets as it did, for example, with cocoa. Until 1949 the supply position was comfortable, and all factors in the industry prospered during the postwar commodity inflation.

That World War II controls over coffee created no lasting hardships is generally conceded. Growers, despite some expressions to the contrary, fared better in the postwar period than even they had expected or hoped. The trade, likewise, operated on a generally satisfactory basis.⁵² Until 1949, when coffee prices reached new all-time highs as demand exceeded available supplies, coffee consumers were apparently not able to distinguish between high coffee prices and high prices generally for food, clothing, and housing. Some of the forecasts made during the war seemed at last to be approaching realization, but not always for the reasons advanced when they were made.

⁵¹ In 1949 coffee producers and the United States coffee trade finally got together on a co-operative promotional and advertising campaign.

⁵² The then president of the National Coffee Association (George V. Robbins) stated in 1947: "We should frankly recognize that the actual form of most of the governmental regulations was designed by the industry . . . by and large the industry ended its bout with restriction in almost exactly the same form that existed at the start. No branch of the industry was discriminated against or seriously injured." *Coffee Annual, 1947*, p. 27.

CHAPTER 6

POSTWAR DEVELOPMENTS AND PROBLEMS

Developments in the world coffee situation following the termination of World War II proved year by year that the worst fears of the war period were not justified. By the close of the 1940 decade, production was in approximate balance with prospective consumption. Prices remained firm at historically high levels even after a downward adjustment in the quotations of most other commodities had begun. This relative firmness was attributable to well-sustained demand, the prospect of smaller crops, and the elimination of the bulk of marketable surplus stocks. The specter of a "surplus problem" of a few years earlier had disappeared, at least for some years ahead.

To be sure, there were some misgivings about the permanence of the war-raised consumption level in the United States, and effective demand in Europe did not come up to earlier expectations. But producers were apparently satisfied with the level of profits, and importers and roasters did not object so long as ultimate consumers continued to buy at the high retail prices that prevailed. Thoughts of control schemes for "stabilizing" the market were put aside since no emergency existed or seemed to be in the offing. But if the problems on the international level were not pressing, there were, nevertheless, internal problems in a number of major producing countries which would, if not solved, sooner or later have important repercussions on the world coffee industry.

DECONTROL AND THE "NEW ERA"

As World War II neared its end there was every expectation in coffee-growing circles that prewar market (but not price) conditions would be approximated in a relatively short time. It was anticipated that price ceilings in the United States would be removed, that shipping would be plentiful, and that the European market would be reopened with a strong demand for coffee after years of privation. In view of several years of short crops in Brazil, a reduction in stocks held, and probable renewed and increased demand, it was confidently expected that prices would rise appreciably. Producers, at long last,

were to be in a stronger position than buyers, and they looked forward to exploiting their advantage. Smooth sailing for the industry seemed to be indicated for at least 5 or 10 years ahead.

Most of these expectations were realized, although more slowly than anticipated, and growers enjoyed a new period of prosperity despite the failure of European demand for coffee to become *effective* demand on the prewar scale.

If a "new era" was really at hand it would mean significant changes in the operations of importers and roasters in coffee-consuming countries. Approximate balance between production and probable consumption was a condition experienced only occasionally after the turn of the century. No real coffee shortage in the world as a whole had existed, despite local and temporary shortages here and there, such as those created by wartime transportation difficulties, or shortages artificially induced by Brazilian efforts to "stabilize" prices by manipulating supplies. From the 1930's on there was little need to be concerned about supplies, for stocks of coffee were more than ample.

Buying policies of roasters are necessarily different under conditions of close balance from those when a large surplus exists. At the prewar coffee price level, small variations in buying policy made little difference competitively. There was limited opportunity for speculative operations and, while stocks were so large, weather reports affecting the next season's crop were not important nor closely followed. Buyers enjoyed a stronger position than sellers, and price fluctuations tended to be relatively small. All this would be changed if a tight condition of supply should prevail for several years. Meanwhile, the need for government intervention and controls in producing countries would largely disappear. Theoretically, at least, the world coffee market should be freer and more competitive, but also more uncertain, than for several decades.

The Inter-American Coffee Agreement, essentially a wartime measure, remained in force after the war until the end of September 1948. Quotas originally established in 1940 tended to get so far out of line with production that they were finally suspended, but the Agreement was renewed from year to year on a stand-by basis. The Board, meanwhile, continued its long-promised study of the "surplus problem," which had threatened in the early years of the war. When its report was finally made in 1948, the Board concluded that there no longer was a surplus, or a threatening surplus of consequence. Indeed, in the eight years that elapsed from the time it was

given its mandate to "study and report" until its report was made public, prospective coffee surpluses had ceased to be an immediate worry.

Concluding that the outlook for the world coffee industry was "very encouraging," the Coffee Board study did not, however, attempt to look beyond 1950. Its forecasts were accordingly short range, and couched in terms of *trends* for the period 1946-50. Certain assumptions were made, e.g., that the price level prevailing for green coffee in the last quarter of 1946 would hold. Estimated average annual world exportable production for the period was placed at "about 29.8 million bags" (2.9 million higher than the 1940-44 average) and consumption slightly lower, at 29.1 million bags. Hence, approximate balance was visualized.¹

The Pan-American Coffee Bureau estimated exportable production for 1947/48 at 27.9 million bags and for 1948/49 at 30.5 million bags while aggregate consumption for 1949 was placed at 32.5 million, suggesting a shortage by 1950. This forecast was partially confirmed later by experts of the Food and Agriculture Organization of the United Nations (FAO) who looked for a record low carry-over (2.5 million bags) at the end of the 1948/49 season, a very close balance between supply and demand in 1950 (with a possible deficit of 1 million bags), possible further price advance, and a larger gap between supply and demand in 1951.²

Clearly, the expectations of 1944 and 1945 were beginning to be realized in 1949, as coffee stocks declined and coffee prices reached new highs. Brazilian surplus stocks had been so pared down that it was generally expected that the entire carry-over would be eliminated by mid-1950. DNC stocks were reported as finally and completely liquidated early in 1949. The São Paulo 7 percent Coffee Realization Loan of 1930 was redeemed in April, after the DNC had reportedly "dumped" 3,655,000 bags on the market for the purpose of the liquidation, thereby "clearing the decks for completely free trade in

¹ It was further thought by the Board's Special Technical Commission that "the 1946-50 period might mark the beginning of a movement towards wider geographic dispersion of the coffee producing industry" (p. 24). This thought was based on an anticipated average rise in American exportable production of 1 million bags vs. 1.8 million for the rest of the world; yet the Board cautioned that its information was better for Latin-American producing countries than for others.

² FAO, *World Outlook for Individual Commodities* (Washington, D.C., August 1949), p. 14. Another FAO study (*Report on World Commodity Problems* [September 1949], p. 47) states: "Analysis of the postwar supply-demand situation indicates that for the next 5 years and probably throughout this decade . . . a surplus situation is not anticipated."

coffee." And an early official DNC estimate of 1949/50 exportable production forecast a decline to 14.4 million bags, or only 13.5 million after deductions (for port consumption in Brazil).

Just prior to the termination of the Inter-American Coffee Agreement, the Board, having disposed of the "surplus problem," argued that "many" of the industry's problems remaining for solution could be handled more effectively by national action, and those within the scope of international action could be solved by other international organizations, existing or proposed.³

The Coffee Board defined the major problems of the world coffee industry (in 1948) as "those relating to international marketing of coffee, statistical services and information bearing on developments in the industry, scientific research and application of technological knowledge, and also to arousing and maintaining the sympathetic interest of governments of coffee importing countries on such matters as the long-term welfare of the world coffee producing industry."⁴

One international organization, however, had already gone on record to the effect that "the chief problems affecting coffee production and trade could certainly be more easily resolved within the framework of the general agricultural and nutrition policy of the Food and Agriculture Organization."⁵ The FAO Bureau in Rome, unlike the Coffee Board, considered the postwar problems of the coffee industry of sufficient magnitude to endorse enthusiastically a scheme for "the concerted control, on an international basis, of production, trade and prices."⁶

It was apparent that wide differences existed in the interpretation of the postwar world coffee situation, the problems or difficulties involved, and in proposed plans of action.

³ *Coffee Board Study*, p. 31. Upon termination of the Agreement the Board evolved into the "Coffee Commission of the Inter-American Economic and Social Council" which is under the auspices of the Organization of American States (formerly known as the Pan-American Union).

⁴ *Ibid.*, p. 35.

⁵ *The World's Coffee*, p. 9. Problems of the industry, however, were conceived in terms of the difficulties likely to be encountered in the recovery and orderly expansion of the world coffee trade. "The obstacles hindering expansion are mainly: (1) A lower standard of living and less purchasing power among millions of consumers; (2) shortage of shipping and relatively high freight rates; (3) instability of money and rates of exchange, lack of financial balance in most European countries, and measures limiting transfer of funds for commercial transactions; (4) the restrictive policy of import quotas, customs and domestic taxes which hits severely the importation, distribution and consumption of coffee, especially in Europe; (5) competition from other beverages, especially tea; (6) the enormous increase in substitutes, owing to their relatively low price." On the latter three points, see discussion in Chapter 17.

⁶ *Ibid.*, p. 15.

MARKET AND PRICE DEVELOPMENTS

Agitation for raising or removing price ceilings on coffee in the United States finally bore fruit after the end of the war. In October 1945 government authorities indicated more receptiveness to persistent proposals, mostly from producing interests,⁷ provided the United States could be assured an "adequate" volume of coffee supplies at "reasonable" prices if the ceilings were removed. While representatives of producing countries were presumably figuring out a way to make such assurances and were delayed "unavoidably" in negotiating "through official channels," coffee prices started to rise, as they had on numerous occasions in the past "in the course of negotiations." The Coffee Board's official account reads:

Unfortunately . . . news of the negotiations reached the coffee market . . . Green coffee prices began to rise and threatened to curtail seriously the amount of coffee imports . . . stocks . . . were low at the time. . . . It was feared . . . that any further delay . . . would only cause greater disruption in the market. The United States Delegate, therefore, informed the Board that an immediate solution . . . was considered essential by his Government and that it could not accede to the request of . . . Brazil to postpone a decision . . .⁸

Instead of eliminating or raising the ceilings the United States resorted to subsidizing its coffee imports, as it was felt that other action "would have augmented the mounting inflationary forces in the country." The subsidy was at a flat rate of 3 cents a pound, originally on a maximum of 6 million bags purchased after November 19, 1945, but later extended to cover an additional 7 million bags, plus

⁷ By this time United States coffee interests had accepted defeat and were more or less willing to go along with producer demands. What were described as "bootleg conditions" had arisen owing to the conflict between inflexible United States ceilings and established minimum export prices in producing countries which left no margin for the profitable operation of the trade. John M. Hancock, chairman of the board of the Jewel Tea Company, probably expressed a popular view in the trade when he urged an increase in ceiling prices in order to "maintain honesty on the part of the industry" because "every imaginable kind of device" was being resorted to in order to get around the law. "In twenty-five years of close observation of the coffee industry I am sure I have never before seen such a corrupt situation. . . . In theory . . . a coffee roaster must buy at or below established ceilings . . . the fact is that he cannot. . . . There is no way . . . to impose on Brazil and other producing countries our ideas of price . . . the grade of coffee furnished the American people under the pretense of holding the price line is so deteriorated that there is no reality back of the idea of holding the price line. . . . There is no way of compelling them [the producing countries] to deliver goods, least of all now that the war is over . . . other nations are disregarding our ideas of ceiling prices and they are able to buy freely. That only stiffens the producing countries in their desire to get higher prices from us." *Journal of Commerce* (New York), Sept. 12, 1945.

⁸ Inter-American Coffee Board, *Fifth Annual Report, 1945-46*, p. 10.

500,000 for "hardship" cases.⁹ This made a total of 13.5 million bags, and delivery time was extended from the original March 31 date to June 30, 1946. Growers did not consider this a satisfactory solution of the price problem. United States coffee interests, however, pledged their support of the program.

By the spring of 1946, when the price question came up again, the coffee-producing countries reiterated their view "that elimination of all restrictions is the only solution to the coffee problem."¹⁰ However, Brazil and the mild-producing countries had different ideas when it became apparent that the United States was not as yet willing to decontrol completely but would consider extension of the subsidy arrangement, pending a better solution to the problem. Led by Colombia, and joined by Guatemala, Costa Rica, the Dominican Republic, El Salvador, Mexico, and Venezuela, the mild producers affirmed:

We consider that the three cents subsidy does not proportionally compensate those coffees which command higher prices. . . . Such coffees are now receiving less than 20% compensation above ceiling prices . . . while the lower priced coffees are benefited by an average figure of 30% . . . an economic injustice . . .¹¹

Brazilian coffee interests, of course, did not agree, and, although also dissatisfied with the subsidy as "insufficient," they accepted the OPA proposal for its continuation to June 30 "only as a temporary solution" to avoid "near paralyzation" of the market.

A *Memorandum of Understanding* was concluded in June in which Brazil guaranteed to supply some 3 million bags to the United States market, if requested, and agreed not to increase minimum export prices or export taxes on coffee for the duration of price control or until March 31, 1947, whichever period proved to be the shorter. The United States government announced an increase in ceilings of 2.075 cents and continuation of the 3-cent subsidy. In August the State Department referred to the signing of a "new" agreement and then requested that Brazil place 500,000 bags on the

⁹ Meanwhile, after the discontinuance of coffee destruction in Brazil in 1944, the DNC began subsidy payments on the 1944/45 crops. In June 1945 this arrangement was changed to an export subsidy, at varying rates for each state. Speculative withholding in the interior in anticipation of the end of the war and high postwar coffee prices made it impossible for Brazil to fulfill its obligations toward the United States without the subsidy. It was the only way to maintain the flow of exports under United States ceiling prices. Within about a year, however, the United States subsidization of imports took the burden off Brazil.

¹⁰ Inter-American Coffee Board, *op. cit.*, p. 43.

¹¹ *Ibid.*, p. 44.

market in October. This request was later withdrawn, as coffee price ceilings were finally removed on October 17, and the months of negotiating for "adequate supplies" at "reasonable" prices came to nothing. Producers gained what they had wanted for so long, and questions of adequacy of supplies and price levels were henceforth to be determined by a free interplay of market forces.

Before coffee ceilings were finally removed in October 1946, they had been raised twice to a level (in August) of 8.32 cents a pound above those originally established in December 1941. Statutory authority for price controls lapsed temporarily in July, and the coffee subsidy program was not renewed at its expiration (it was deemed "administratively unfeasible"), but ceilings were raised. Most coffee roasters announced price increases of around 10 cents a pound in August and, after ceilings were removed in October, a series of additional increases were made. It took very little time to justify the OPA prediction of June that coffee prices would rise 15 cents a pound if controls were removed.

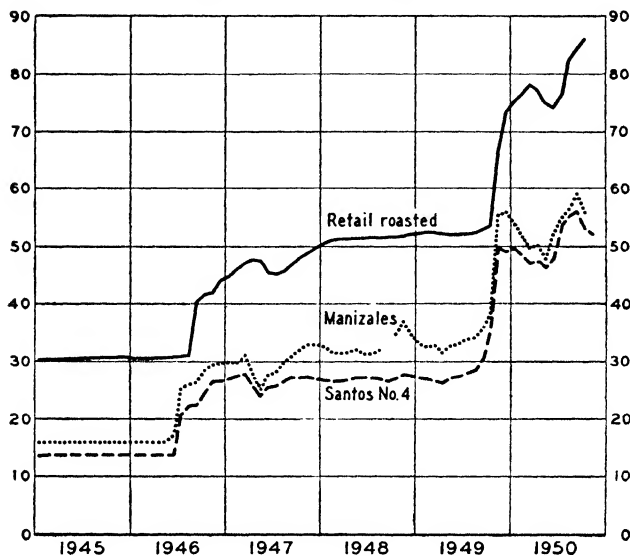
Following the removal of coffee price ceilings in the United States, trading was resumed in coffee futures on the New York Coffee and Sugar Exchange, and the Santos "Bolsa" in Brazil reopened.¹² Decontrolled prices of Manizales in New York rose to around 31 cents and Santos 4's to around 27 cents (the highest prices ever recorded for *these* grades up to this time). But in April 1947 the first major decline in almost 7 years occurred.

During March 1947, Manizales averaged 30.8 cents a pound and Santos 4's 27.7 cents, or about twice the wartime ceilings and roughly four times the 1940 lows. The setback in April and May was short-lived. Prices resumed their upward trend from mid-1947 on, establishing new all-time peaks in late 1948 and again in November 1949. Except for the temporary decline in the second quarter of 1947, retail roasted prices also continued to rise gradually to new highs (Chart 5).

Apprehension about the coffee price level had been general in the spring of 1947. Stocks had accumulated in the United States, the "invisible" supply was greater than suspected in trade circles (Department of Commerce monthly reports on roastings had been discontinued), and all factors in the trade became anxious to reduce inventories. By the end of April, futures on the New York market had dropped by more than one-third (around 8 cents) from the highs

¹² Coffee exchanges operated in Santos, Rio de Janeiro, and Victoria were closed by government decree in 1937. The others were reopened shortly after resumption of trading on the Santos exchange in October 1946.

CHART 5.—WHOLESALE AND RETAIL COFFEE PRICES IN THE UNITED STATES, MONTHLY 1945-50*



* Data of the U.S. Bureau of Labor Statistics.

reached in February. Spot Santos 3/4's sold, cost and freight, at 23.5 cents *vs.* a high of about 26.8 cents.

The statistical position of coffee in the United States was termed "baffling," and some observers concluded that "the myth of an annual United States consumption of 20 million bags has been thoroughly exploded."¹³ Roasters reported a fall in demand, roasting activity was said to be only 60-70 percent of the 1946 rate, and stocks on hand were estimated at around 4.6 million bags. Retail roasted coffee prices followed the drop in wholesale green coffee prices. The large chains reduced prices on most vacuum-packed coffees by 3 cents a pound, and 2 cents on bagged coffees, the first decline in six years.¹⁴

Meanwhile Brazilian and Colombian coffee interests once again

¹³ *Public Ledger* (London), June 14, 1947, p. 5, quoting a review of the coffee market by Nortz & Co.

¹⁴ In seeking an explanation for such market developments, the USDA was blamed for marketing 480,000 bags of Army surplus stock. Depressed prices in August were blamed on DNC sales which were suspended during that month as the result of protests. The DNC, abolished in mid-1946 (one year ahead of schedule), was in the process of liquidation. Its selling activities aroused much speculation and controversy until February 1949 when all of its stocks were reported as having been sold.

resisted any decline in prices from the levels which they had so arduously promoted, and announced plans to "stabilize" the market.

The Colombia Federation of Coffee Growers was thought to hold substantial stocks but was unwilling to make any price concessions.¹⁵ With \$80 million in resources, it was reported in late spring of 1947 to be buying 90 percent of all the new-crop coffee at 28–29 cents a pound and was ready to purchase "without limitation" to support the market. (Manizales had fallen from about 30–31 cents to 27 cents.) Apparently the Federation planned a valorization scheme, such as the Brazilians had employed upon several occasions in the past. At the same time it announced plans to open an office in London for the purpose of promoting European sales. Market developments of the next few years, which were favorable to producers, permitted the semigovernmental agency to liquidate its temporary holdings advantageously.

Stocks in Brazil were more than ample (United States interests questioned official statements on the size of interior stocks, noting that "enormous discrepancies" still remained), but no formal "valorization" or "defense" scheme was announced. The Brazilian Minister of Finance let it be known that DNC stocks were "frozen" and that no more sales would be made under current market conditions. Rumors were rife that a minimum export price of 23 cents would be established.

The maneuvers of the producing countries to "support the market" were not reassuring. The DNC estimated Brazil's 1947/48 exportable production at 16.7 million bags, substantially larger than the increasing crops of the previous three years. The production cycle seemed to promise several big crops, while the consumption curve, at least in the United States, was headed downward.¹⁶ The

¹⁵ The Federation considers information on interior stocks as confidential. It has apparently been following essentially the same tactics as employed in Brazil by the DNC, but with more success, owing to the more favorable conditions of recent years. Eventually, however, the Colombian coffee policy may produce the same consequences as the earlier Brazilian coffee policies.

¹⁶ *Barron's*, June 9, 1947, p. 29. Colombia ". . . is making U.S. importers peg the price. If the Colombian sales contract doesn't show a price of 26½ cents or more, the exporter gets no shipping permit . . . Brazil pegs the price by the CCC subterfuge of loans against warehouse receipts. These are made at 15 cents a pound."

Colombia continues to use the minimum export price device introduced in 1940 to encourage the price rise prior to the signing of the Inter-American Coffee Agreement. It was "unofficial" until established by legislation in 1947 for the purpose of adjusting an unfavorable balance of trade. The Office of Exchange Control concerns itself mainly with coffee which accounts for more than 80 percent of Colombia's dollar income. By late 1949 the established minimums were more than double the

outlook for European consumption was not rosy, and generally bearish price developments were looked for—developments that failed to materialize, partly because the Marshall Plan came to the rescue, and partly because production declined and consumption was better sustained than had been anticipated earlier.

During 1948 prices of Brazilian coffee were supported by strong demand from all sources, resulting in exports which were greater than reported exportable production had been for almost a decade. Stocks within Brazil were correspondingly reduced, the DNC sold coffee estimated at 1.5 million bags, and the 1949 harvest of São Paulo was forecast as smaller than the 1948 crop. Brazil's 1948 exports amounted to almost 17.5 million bags (*vs.* 14.7 in 1947), the largest volume since 1931 and the second largest on record. Dollar value set an all-time high.

The end-May 1949 forecast by the DNC of Brazil's exportable production was smaller than the year before; coffee prices remained relatively firm, when commodity prices in the United States started to decline in the spring. By mid-1949 Manizales averaged around 33 cents, down 3–4 cents from the previous November peak, and Santos 4's held around 27 cents, only fractionally under earlier peaks. By September uncertainties of supply had pushed prices up to record levels for all time. Later in the same month, as country after country followed the British lead in devaluing their currencies, coffee prices in New York began what proved to be the sharpest run-up on record for the time span involved.

The most spectacular and disturbing coffee price rise within recent memories occurred in the final quarter of 1949 as a "famine scare" took form and caused people to do strange things. From the 27-cent level on the spot market in New York, Santos 4's were run up to a high of 52.5 cents in a 10-week rush. Other growths and grades advanced similarly, and retail prices followed more quickly than usual, rising from 50–55 to 80–85 cents a pound (for vacuum-packed brands) within two months. At the close of the year prices remained at a high level, but they failed to advance further. The "panic" seemed over. The great coffee scare was being described as a "myth" or "a false alarm," and the shortage prospect "fictitious," both inside and outside coffee circles.

Reports that Brazil's 1950/51 crop would be smaller than ex-level of 1947—about 55 cents per pound. By Colombian law minimum export prices are supposed to be based on prevailing prices for Colombian coffee in New York, but in practice the export minimums have frequently been maintained at higher levels. Consequently, they have helped to determine New York prices.

pected earlier because of adverse weather (drought in São Paulo) apparently set off the price upsurge.¹⁷ Conditions were favorable for speculative interests (both in Brazil and the United States) to capitalize on a *prospect* that could not materialize for at least a year, and they were probably surprised at the success they attained. The developments occurred in rapid succession. Feeding the fears of shortage were exaggerated reports of flood damage in Guatemala, hurricane damage in Haiti, and smaller British East African crops because of drought. The Brazilians did not devalue the cruzeiro, as some expected, and futures were run up, partly by a squeeze on disappointed shorts who had no alternative escape from the increasingly strong statistical position of coffee.

Many helped to facilitate the swift price advance. As soon as responsible industry and government spokesmen had explained that there was no current coffee shortage, and *if* one occurred it would not be felt until 1950–51, less responsible factions attempted to confirm the pessimistic crop estimates and talked of even higher prices.¹⁸ Panicky housewives started to overbuy and hoard,¹⁹ grocers in many places were obliged to “ration” their customers, and demand assumed quite abnormal proportions. Roasters were forced to buy green coffee at higher and higher levels in order to meet the demand.

Consumer complaints brought an official investigation, Senator Guy Gillette charging: “Somebody, somewhere, somehow has rigged the market . . . and profited tremendously.” Industry denials put the matter differently—not in terms of rigging the market, but the admission was made that “someone took advantage of it.” Responsibility was hard to place. In any event, high prices soon began to

¹⁷ Estimates ranged between 10–16 million bags, but at this time most attention was given to the DNC estimate of 12–13 million which was widely publicized in the United States by the Pan-American Coffee Bureau. Brazil’s needs for export alone were placed at 17 million bags. Shortly, various United States government agencies (Agriculture, Commerce, and State departments) issued forecasts, by their own experts, which were considerably higher, around 14–15 million bags. No one really knew, or could know, how the delayed rains, which came in late October and partially offset the July to September drought, would affect the size of the crop to be harvested toward the middle of the following year.

¹⁸ Talk of \$1.00-a-pound coffee made the headlines several times. In explaining why coffee prices were high in 1949 and might go higher, the Pan-American Coffee Bureau had this to say: “In a sense, the United States is paying today for the coffee it consumed too cheaply in the ’30s. It is paying, too, for the series of misfortunes which have befallen the coffee-producing countries in the past few years.” *Coffee Newsletter*, September 1949, p. 4.

¹⁹ Some 500,000 to 1,000,000 bags were estimated by the trade to have been hoarded before the movement halted.

be reflected in reduced consumption;²⁰ and the sharp advance in producers' prices, coupled with currency devaluation in numerous consuming countries, presaged reduced demand from Europe and probably larger available supplies for the United States.

During the first half of 1950 coffee prices were down slightly from the extreme highs reached a few months earlier, but following the outbreak of war in Korea in June, they again soared. This time the rise in commodities was general, coffee prices returning to previous peak levels by September.

TRADE POSITION OF PRODUCING COUNTRIES

Indications that the coffee producers' "field days" might be coming to an end in 1947 proved to be quite misleading. After the war, United States diplomacy tended to focus on Europe, and Latin-American political relationships were somewhat neglected. Meanwhile, the coffee-growing countries of the Western Hemisphere were experiencing some of the difficulties anticipated by many observers during the war years, when the United States policy of subsidization in the interests of "solidarity" was often ill-advised and bound to contribute toward later difficulties. By 1948 relations between the United States and the U.S.S.R. had so deteriorated that "hemisphere solidarity" was again desired in Washington, and again coffee-producing interests profited from the course of events, despite earlier failures to secure more than sympathy in their postwar trials.

Vulnerable as they were at the outbreak of World War II, many of the Latin-American coffee-producing countries were in little better shape a decade later. Because of their inflated postwar economies they became even more susceptible to changes in the United States economic scene. Partly responsible for such conditions was the variety of war-stimulated activities which resulted in pouring American dollars into these countries at an unprecedented rate. Having the purchasing power but inadequate domestic controls, they bid feverishly for the scarce commodities that they might import from a narrow list of suppliers. In short order general prices had soared to such levels that the only relief Latin Americans could consider was ever higher prices for exported commodities. Yet these had to be

²⁰ Even in Brazil, consumer reaction to high prices was a drop in consumption. In Rio de Janeiro it was estimated that the decline may have been as much as 40 percent, as coffee prices nearly doubled. *New York Times*, Dec. 26, 1949, p. 37. In the United States consumption declined by an indeterminate amount (some estimates were around 20 percent), and consumers definitely shifted their purchases to lower-priced chain stores.

sold in competition with other world suppliers who were gradually regaining their former productive ability. The situation was aggravated by continuous pegging of the exchanges of Latin-American currencies at levels which did not correspond with their domestic purchasing power.²¹

Latin-American countries were finding their trade badly unbalanced—they were selling more outside the Western Hemisphere than they could buy and buying more from the United States than they could sell in that market. Bidding for all types of goods in the high-priced United States market resulted in a rapid decline in gold and dollar exchange accumulated during the war.²² From a 1946 peak of almost \$5 billion, dollar balances had shrunk to \$3.7 billion by the end of 1947²³ and to \$2.7 billion at the end of 1948. Mounting

²¹ The exchange systems of Latin-American countries remain something of a "mystery" to all except experts in the field. Brief explanations are given in the International Monetary Fund's monthly publication *International Financial Statistics*, yet the complexities are not fully resolved for either the businessman or the nonspecialized student. But some understanding is necessary when one attempts to translate world prices for a commodity like coffee into growers' returns. In Brazil, for example, export proceeds from sales abroad have been required to be surrendered at varying rates (from nothing to 35 percent of the total) at *official* exchange rates, while the remainder was at free market rates. The difference has often been substantial. In 1949 the official selling rate (with tax) was 19.66 cruzeiros to one United States dollar, but the free rate was 30.75. At this time (and since 1946) 20 percent of export proceeds were required to be converted at the official rate. Earlier the percentage had been 30.

²² The National Coffee Association *Weekly Letter* of Jan. 14, 1949 (p. 3) quotes an article by José Garrido-Torres on Brazil-United States trade, extracted here as follows:

"What happened then is the story of postwar Latin America . . . Brazil as a sizable part, illustrates the whole. Foreign exporters, vociferously against controls, were eager to tap Brazil's dollars; and the Brazilian Government, fearing the effects of war-accumulated money on the national economy, wavered . . . the urge to import . . . went beyond government expectations . . . hard-won dollars turned northward. . . . Eager buyers . . . found themselves talked into ordering dubious as well as useful goods. . . . In a typical month, they sold Brazil three times as much liquor and wine, by value, as badly needed farm machinery. . . . The result . . . was the speedy melting away of Brazil's dollars and the piling up of a huge trade deficit. . . . Nearly \$200,000,000 in 1947 [with Uncle Sam] . . . this 'buying spree' . . . depleted the reserves which Brazil had hoped to use to develop industrial organization, to replace worn-out capital goods and to step up all phases of its industrial revolution. . . ."

²³ In 1946 Brazil had shown the most favorable change in terms of trade of any Latin-American country. The general impression that the terms of trade for important coffee-producing countries have "deteriorated considerably" during recent years seems not to be borne out by available evidence. Even before the sharp increase in coffee prices in 1949 "the average price of Colombia's exports [e.g.] had about tripled since 1938 and the average price of her imports had . . . probably not much more than doubled." International Bank for Reconstruction and Development, *The Basis of a Development Program for Colombia, Report of a Mission* . . . (Washing-

inflation caused living costs to rise in spectacular fashion, especially in some important urban areas.

Latin Americans entertained high hopes that the Marshall Plan would result in supporting shaky, inflated local economies and guarantee good prices for any surpluses of their chief export crops that might materialize over a five-year period. The 16-nation Paris Conference in early 1948 placed European coffee requirements at 8.7 million bags annually for four years, a consumption rate about 40 percent greater than that then current. But coffee producers wanted dollars and European countries were already conserving their dwindling gold and United States dollar reserves for more essential purchases. If Latin-American producers would not accept inconvertible currencies, market contraction, accumulation of stocks, and pressure on coffee prices were almost inevitable.

Producers saw in the Marshall Plan the opportunity to enjoy a continuation of high coffee prices. Revival of the European market had been slower than anticipated because of limited purchasing power, exchange difficulties, and dollar shortages. If European demand could be made "effective" by virtue of the fact that the United States supplied the dollars, producers would be able to maintain their superior bargaining position in dealing with the all-important American market. A typical report of the prospects was "Europe Will Buy More Coffee—If We Pay for It."²⁴ Forecasts from some sources that there would be a "weakening of prices on the currently strong coffee market as result of the world dollar shortage" proved premature.²⁵

With European requirements for 1948–51 placed at 8.7 million bags annually, the question was whether the United States would supply the necessary money. If Brazil was unwilling to sell for in-

ton, D.C., 1950), pp. 318–19. Purchases of Latin-American countries in the United States reached the unprecedented total of \$3,860 million in 1947. This was four times the wartime annual average and over seven times the prewar average of purchases. With some \$2,000 million spent elsewhere the total of Latin America's purchases approached \$6 billion. Sales to the United States amounted to about \$2,150 million.

²⁴ American Institute of Food Distribution, Inc., *Washington Food Report*, Sec. II, Oct. 4, 1947, p. 2.

²⁵ See, e.g., a speech of Alan H. Temple, vice-president of the National City Bank of New York, before the convention of the National Coffee Association in October 1947. Temple argued that coffee-consuming countries would husband their dwindling gold and United States dollar reserves for the purchase of only the most essential commodities. Foreign buyers offering inconvertible currencies would be in a weak position. "The overall international trade in coffee would either contract or the anticipated postwar expansion—on which most of the bullish sentiment in coffee trade is based—would be retarded. In either case the long range effect should be a weakening of prices." *Wall Street Journal*, Oct. 2, 1947.

convertible currencies it would be obliged to accumulate stocks. But nothing of the sort happened. Although pared down slightly, allocations to countries participating in the European Recovery Program were generous (7,250,000 bags in 1948-49, rising to 8,183,333 in 1951-52). The United States continued in the postwar period to be receptive to Latin-American requests for economic aid as it had been during the war.

The shortage of dollars threatened to postpone the ambitious postwar development programs formulated in many Latin-American countries. In their desire to diversify agriculture, industrialize, and become "developed" rather than "underdeveloped" nations, these countries were frustrated for lack of capital. Generally speaking, local capitalists in Latin America have never had sufficient confidence in their own governments to be willing to support a national fiscal policy; their interests lay in quick profits that could later be converted to some form of "sheltered" investment. The ERP (Marshall Plan) involved the help of Latin-American countries as suppliers, and hence their bargaining power was substantially increased at a time when it seemed to be on the decline, and when the prospect of reduced raw material exports seemed very real.

If it can be said of many Latin-American countries, as it has been said of Brazil, that

The important thing to the Brazilian economy is the level of incomes in the United States and other countries, rather than any domestic government policy. . . . It can almost be said that Brazil will be prosperous in spite of anything she does if world incomes are high, and that if they decline, she is powerless . . .²⁶

then the maintenance of a high level of exports to the outside world is all-important.

Many Latin Americans have long advocated, especially since the closing years of the war, that the United States, in exchange for their political and military co-operation, accord them preferential treatment, notably in the form of bulk purchases of raw materials at guaranteed prices. This is what would happen, in effect, under the ERP, which provides for the expenditure of over \$1 billion in off-shore purchases during the next year.²⁷

Thus, although perhaps not deliberately planned, the United States efforts to bolster European economies indirectly benefited

²⁶ J. A. Kershaw, "Postwar Brazilian Economic Problems," *American Economic Review*, June 1948, XXXVIII, 339.

²⁷ Oliver Holmes, "U.S. Receptive to Latin-American Economic Requests," *Foreign Policy Bulletin*, Apr. 9, 1948, p. 2.

Latin America. With coffee, the increased purchases by European countries were enough to tip the scales and create conditions in the United States market that producers had long sought. By late 1949, with the "coffee famine scare," their most extravagant hopes had been realized.

Saner voices were found here and there in producing countries. Some could not view with equanimity the conditions that had been created in world coffee markets, resulting in prices at such high levels that, over the longer term, markets were bound to shrink. An article in the newspaper *Folha da Manhã* (São Paulo) stated in part:²⁸

It is disgraceful but true that many groups in the coffee trade are highly satisfied with the present severe drought. . . . The great crisis of super-production has created an obsession of "statistical balance" among us. . . . At present coffee growers have already sold the major part of the last crop and, therefore, still more interest exists in increasing the drought talk. Middlemen will be encouraged in obtaining greater profit margins and even gain approval, because any activity that encourages the coming in of dollars into Brazil is welcome. . . . But coffee does not represent an occasional cultivation and for the coffee grower its cycle is not limited to a commercial year. . . . The reaction lately observed . . . shows that the majority of coffee growers understands clearly that the policy of high prices is a wrong one. . . .

Realization that high prices cannot for long compensate profitwise for lack of product to sell should tend to encourage advances in cultural practices that contribute to enlarged output. A high level of exports cannot be maintained at prices that restrict consumption.

SPECIAL COFFEE PROBLEMS OF BRAZIL

Future developments in the world coffee situation will continue to be heavily influenced by what happens in Brazil. There are, therefore, many reasons for considering the Brazilian position in greater detail. The war not only accelerated trends already strongly in evidence, but created some new conditions that seem likely to have important repercussions on the world coffee economy.

The Brazilian coffee industry today is not only feeling the effects of the prewar surplus problem and the neglect of plantations during the war, but is reacting to changes in the general economic and social pattern of the country. These evolutionary developments, in turn, reflect political changes, revolutionary or otherwise. All of the various factors in the Brazilian situation are interrelated and need to be considered in any appraisal of future prospects.

²⁸ Translated and reproduced in NCA, *Weekly Letter*, Nov. 11, 1949.

The Brazilian economy was described recently in the subtitle of a book as one of "chronic inflation and sporadic industrialization."²⁹ Another writer, pointing out the marked differences between the Brazilian economy and those of more fully developed countries, holds that

it is almost impossible for the government to pursue a fiscal policy. There are no organized money markets, the credit of the government is poor . . . domestic investment goes by tradition into land . . . private savings do not flow into government securities. . . . the role performed by investment in advanced countries is performed in Brazil by the export surplus. . . . An export surplus generates economic activity; an import surplus is depressive. . . .³⁰

This relationship between exports and business fluctuations seems typical of agricultural and raw-material producing countries and is not confined to Brazil.

Despite agricultural and industrial diversification in recent years (especially in São Paulo),³¹ coffee remains the largest source of Brazilian national income. Problems of coffee prices and domestic inflation are inseparable. Wartime controls in Brazil were inadequate and in the postwar period the huge dollar balances built up during the war were rapidly used up by importations on a vast and indiscriminate scale. Inflation of costs, the principal argument used by Brazilian coffee growers in their several years' effort to break the ceiling prices established in the United States, grew more pronounced than ever.

Many reasons have been advanced for the declining coffee output in Brazil during recent years. These range from weather influences to the age of trees, the abandonment of acreage, soil erosion, the absence of new coffee lands, the spread of the "Broca" disease, and so on. All of these have undoubtedly played a part, but probably of more fundamental importance in explaining the ill-health of the Brazilian coffee industry is government intervention. Originally invited—in fact demanded—many years ago by the all-powerful coffee interests, today the outside observer cannot help being impressed with

²⁹ H. W. Spiegel, *The Brazilian Economy: Chronic Inflation and Sporadic Industrialization* (Philadelphia, 1949).

³⁰ Kershaw, *op. cit.*, p. 338.

³¹ In recent years more acreage has been devoted to corn and cotton than to coffee. Rice and beans also figure prominently in the cultivated area of Brazil. Within the 1940 decade some 2 million people are estimated to have migrated from the older agricultural areas to the frontier regions of northern Paraná, western São Paulo, and southern Goiás.

the fact that most of the coffee problems of Brazil derive from too much government influence, regulation, control, and subsidization.³²

From the time the São Paulo coffee growers appealed for aid in 1905, and the first valorization scheme was instituted, up to the present, the Brazilian government has been thoroughly and deeply involved. Government programs from 1905 to 1921 were regarded as "temporary," but from 1922 on they have been permanent whether or not any formal control scheme was employed. Until 1929, programs of "valorization" or "coffee defense" were the thing. From 1930 until the abandonment of all formal controls in 1937, there was little opportunity for much beyond reduction of enormous surplus stocks. But from then on, through the period of the "coffee war," the Inter-American Coffee Agreement, World War II and United States price ceilings, all efforts were directed toward getting better prices for coffee. Every device conceivable that might contribute toward this end was employed until the market became free in 1946. After that, the slightest threat to ever rising coffee prices was met with hurried schemes for "stabilizing" the market.

Perhaps ambitious and formal artificial control schemes will not be attempted again in Brazil, despite lingering faith in them, but one can be fairly secure in the belief that substitutes will be found and tried. So long as coffee is important in the local economy, the Brazilian government will be an active and positive factor in the world coffee situation.

Despite the apparent inability of the central government to pursue a sound fiscal policy, controls extend in all directions and the bureaucratic machine is immense.³³ Government controls are found in virtually every phase of Brazilian agriculture; there are government organizations, commonly referred to as defense (*defesa*) institutes, for coffee, cocoa, maté, sugar, tobacco, rice, and livestock

³² Brazilians in the older coffee districts, according to Paul Nortz (Nortz & Co., *Brazilian Impressions*, Feb. 27, 1947, p. 2), hold similar views. "Speaking to residents . . . we invariably got the same, somewhat unexpected answer. It was not the aging of the coffee trees, nor the so-called tiring of the soil, nor the erosion, nor a combination of all these factors. They indeed played their part for many years previously, but given a chance they could have been combatted with a fair measure of success. The real culprit, we were told everywhere, was the D.N.C. . . . what hurts these planters most is that their sacrifices have been worse than futile." Reference here is to the years of DNC market control when growers were obliged to sacrifice a certain portion of their crop in the hope that the surplus problem could be solved by production limitation or destruction.

³³ Moving a bag of coffee from a Brazilian fazenda to shipboard is said to require "the filling out of no less than 172 forms." Nortz, *op. cit.*, p. 6.

industries.³⁴ Social legislation, enacted in the depression years after the revolution of the early 1930's, also has a profound bearing on the coffee industry's cost structure.

Before the Vargas revolution the cost of living and wages were both low in Brazil. Even in 1944 the daily wage of a farm hand averaged only about 35 cents (U.S.). In addition to wages, of course, the worker received living quarters and a plot of ground for growing his own vegetables and chickens and pasture for a cow or goat. In recent years the price of labor, often quite inefficient, has been reported as around the equivalent of \$2.50 per day. But there is no satisfactory information available on wages and no means for judging the representativeness of isolated reports.

In general, prices, living costs, and wages in Brazil seem to have increased about three and one-half to four times since 1939. The meager data available³⁵ suggest that coffee prices have kept comfortably ahead of costs. The base year for the index numbers is 1937, except for wages:

	1939	1945	1949	Percentage of change since 1945
Wholesale prices (25 commodities, weighted)	94	208	384	+85
Coffee (Santos No. 4 in				
São Paulo)	85	248	481	+94
Cost of living (São Paulo) . . .	107	249	384	+54
Wages (heavy industry; 1946 = 100) . . . . .	...	(82)	(133)	+62

Wages of farm hands seem likely to have increased less than hourly earnings of factory workers in heavy industry.

The labor situation in Brazil seems to be a major handicap to the further development of the long-established coffee industry. Many of the production and processing techniques advocated for the improvement of the quality of the Brazilian crop probably would require more rather than less labor, as well as capital. There may be labor-saving techniques that could be employed, as seems possible with tea, but thus far they have not been suggested.

Nothing could have had a more far-reaching effect than the law forbidding employers to dismiss any worker who had been on their pay-roll for more

³⁴ D. R. Bishop, "Brazilian Agricultural Policy," *Foreign Agriculture*, April 1949, XIII, 87.

³⁵ International Monetary Fund, *International Financial Statistics*, September 1950, III, 44.

than ten years. . . . labor has become most untractable, while pride in workmanship is at a low ebb. The upshot of all this has been a huge draining of labor from the agricultural districts to the Cities, at a time when new emigration was non-existent. . . .³⁶

One of the leading coffee companies in the United States is known to have been interested in a development scheme in Brazil designed to assure its supply sources, but after several years of experimental work to prove the project feasible it was finally abandoned, at least for the time, because of the labor problem. A labor shortage existed in the producing area in which the company was interested which would have necessitated the importation, housing, and repatriation of seasonal help. Efforts to secure some assurance of cooperation from the Brazilian government were unsuccessful.³⁷

It seems unlikely that many of the former agricultural workers, attracted to the cities during the postwar urbanization boom in Brazil, will return to the country when deflation finally sets in. This is not the typical pattern. The government, furthermore, seems disinclined to encourage immigration as in the past. No immediate solution seems to offer itself via immigration as administration of existing laws has definitely restricted the inflow of potential worker citizens for many years.³⁸ In the Coffee Board's estimate of the Brazilian production potential for 1946-50, however, it was expected that labor would be available in adequate amounts.³⁹

Past attempts to control the coffee industry artificially, immi-

³⁶ Nortz & Co., *Some Brazilian Postwar Problems*, [market letter] End of March 1948, p. 2. "A mild rebuke or an order not to the liking of a workman is sufficient to make him throw down his tools and quit on the spot. It does not take much imagination to picture the caliber of the labor still available on farms. They consist of what remains after those with the initiative to fend for themselves, or to seek advancement in the Cities, or even those acceptable as repair men on the roads, have left." *Ibid.*, p. 5.

The Abbink Commission (U.S. Department of State, *Report of the Joint Brazil-United States Technical Commission*, 1949, pp. 127 and 271) considered Brazil's labor and social legislation "advanced" but warned that "any further expansion of benefits must be preceded by a very vigorous acceleration of production; otherwise the cost of social benefits can become an obstacle to production itself."

³⁷ As Brazilian labor laws stand, the company feared that by importing seasonal labor it would incur obligations that might result in being "stuck for life." Undoubtedly other factors were involved, but trade gossip placed the emphasis on the labor situation as the chief reason for indefinitely postponing plans that seemed in the interests of Brazilian development as well as the company.

³⁸ Among labor and manpower considerations in the economic development of Brazil, the Abbink Commission (*op. cit.*, pp. 126 and 270) pointed to the need for "the development of an appropriate immigration policy" and considered one of "selective immigration" as "certainly desirable."

³⁹ *Coffee Board Study*, p. 26.

gration restriction, and social legislation have all had their influence on costs and hence the coffee price level. An important factor in the future price level of coffee will undoubtedly be wage levels in the various competing coffee-producing countries. (For a discussion of the many and varied factors entering into coffee production costs see Appendix A.)

During the war when prices were fixed, labor scarce, and chemicals for spraying and fertilizers practically unobtainable, there was little incentive for continuing the control measures which kept diseases in check fairly effectively in prewar years. To some extent general neglect can be compensated for later, at greater expense, but when better upkeep can be afforded, as during years of high coffee prices, there is a tendency to do only those things immediately contributing to higher output.

Complaints on the part of United States importers during the early postwar years about the quality of some of the Brazilian output were not new. Growers argued that it cost too much to make the improvements desired by buyers, and many felt that the postwar demand for coffee would be such that almost anything could be sold in some market. From a longer-range viewpoint, this reluctance to make the investment in equipment for better processing, for example, was likely to show up in a weakened competitive position *vs.* the mild producers.⁴⁰

Over a period of years growers in the mild-producing countries took the necessary steps to strengthen their position and cater to the desires of the most important markets. It might be more expensive to do the same in Brazil today, yet prices and profits have been for several years at such high levels that if needed reforms cannot be undertaken now they probably never will be.

Apparently Brazilian coffee growers have become so dependent upon government assistance that few will take normal risks without some kind of a subsidy or guaranty. The calls on the Brazilian government for assistance now are more numerous than formerly (e.g., cocoa producers), a result of diversification of exports in recent years, and coffee producers will probably not enjoy the same advantages as in the past.

Meanwhile, Colombian coffees have gradually become the basis

⁴⁰ The Minister of Agriculture of São Paulo recently stated "that Brazil felt able to meet the growing competition from other coffee-growing countries." He pointed to improved seed now being used in new planting, which was expected "to produce a coffee superior to any type previously known" and produce bearing trees in three years instead of four or five. NCA, *Weekly Letter*, Feb. 3, 1950.

for most calculations in buyers' attempts to satisfy recognized market demands and consumer wants. Today, with the relative shortage of the mild growths most in demand, Colombia has attained a position where she can dictate, and does to a great extent, just as the Brazilians did for so many years. Buyers are never happy under such an arrangement and would like to feel more secure from various types of "hold-ups." Hence, their activities of recent years in encouraging production and the approved type of preparation for the United States market in many smaller coffee-producing countries. They hope to offset the dominance of Colombia in the market and strengthen their own position, just as they supported Colombia in its rivalry with Brazil, a rivalry which was quite apparent by the 1930's but had its modest beginnings in the 1920's.

Some coffee interests in the United States go so far as to visualize a revived and modernized coffee industry in the West Indies as serving as sort of a warehouse for New York. Labor is plentiful, most of the islands are in need of economic rehabilitation, and a profitable export crop will help. Methods of cultivation and preparation for market tend to be backward, but with assistance and education possibilities are thought to exist for developing and assuring a near-by source of supply of mild coffees.

Coffee growing has unquestionably again become a profitable enterprise under the high prices that have prevailed in recent years. Planters will seldom admit as much, such is the pose which has become part of the tradition of the business over many generations. Precise information under these circumstances is very difficult to obtain.⁴¹

Disparities between coffee production costs and prices have occurred periodically in Brazil over many decades, but until about 1942 the greatest item, i.e., the wages of labor, was fairly well stabilized by immigration. The freeing of the slaves in 1888 set back the industry for a while, but between 1890 and 1935 large numbers of

⁴¹ One observer reported in 1947 that a hard-working *fazendario* in Brazil had admitted to him "with a big grin" that his costs were about \$12.50 per bag for which he was paid at the door of his farm \$22.50. He further concluded that the planters were the ones "back of the present firmness in Brazilian markets, preferring to pay heavy carrying charges rather than let their goods go at prices which they consider less than what they imagine they should eventually fetch." Nortz, *op. cit.*, p. 4.

A report by the Agricultural Officer of the United States Embassy at Rio (quoted in NCA, *Weekly Letter*, Oct. 27, 1950) concluded that the farm price for coffee in São Paulo was 77-91 percent of the New York wholesale price and that "the Paulista producer appears . . . to have gotten a fairly proportionate share of the [1949/50] Santos and New York City price increases."

Southern Europeans, and later Japanese, were admitted to the country and provided an ample labor supply. As labor has left the farms in recent years for better-paying city jobs, both the quantity and quality of the remaining supply has suffered. Yet the typical large plantation owner has never been especially concerned about making the rewards and conditions of work attractive. Such improvements as have been made have been largely government imposed. Measures designed to protect labor have not contributed to efficiency of production.⁴²

The objective of the large coffee producers seems to have long been the reaping of large and quick profits for the minimum effort and expense. With a preference for early and high returns over more modest but steady longer-run results, it is not surprising that the typical approach has been on an exploitative basis. This is reflected in the indifferent care of trees already in production, the way new plantings are managed, the type of overseers employed, and the manner in which labor is recruited, rewarded, and cared for. When trees become old and unproductive, younger operators have found new lands and repeated the process, while older men tend to take their money out off coffee and place it in urban real estate.

During the postwar boom in urban and industrial development, coffee has not been able to compete as successfully as in the past for investment funds. The quick profits to be derived from alternative ventures have, in all too many cases, been properly described as "fantastic." What will happen when the boom comes to its inevitable end can only be a matter of conjecture. If demand is relatively well maintained and coffee is in short world supply, the coffee price level may be sufficiently profitable to appear once more attractive in comparison, say, with deflated real estate values. Except for relatively short periods, other crops have not generally been as profitable as coffee.⁴³

⁴² Writing about Brazil in 1945, Springett (cited Chapter 3) commented as follows: ". . . it is safe to say that the standard of living of the coffee laborer and farmer, as well as every group of the coffee industry and every branch of service connected with it, is higher than in any other coffee producing country. As an inducement to keep laborers on the farms, and to conform to new social laws, serious effort on the part of many farmers to provide better living conditions is being made. This is undeniably a desirable feature, but nevertheless, it assists in increasing costs of production, which are already considerably higher than in Colombia, Africa, and Central America."

⁴³ For a few years prior to 1945, and before coffee price ceilings were removed in the United States, cattle feeding and cotton were temporarily somewhat more profitable because of large price rises. Profits from coffee in the booming 1920's, however, compared favorably with the 100 to 300 percent returns obtainable in recent

It seems doubtful that a surplus problem on the spectacular scale of the 1930's will recur again soon in Brazil, yet the persistent faith in valorization schemes is considered by many as a potential danger. Despite complaints against the DNC in some of the older coffee districts and although the DNC has been abolished, the "SALTE" plan⁴⁴ provides for setting up a National Coffee Institute, a semiofficial body, along the lines of the old São Paulo Institute.

Another danger is of course that the record high level of coffee prices in 1949-51, after several years of abnormally high prices, will stimulate an old-fashioned planting boom despite the obstacles. Coffee is still "in the blood" of Brazilians.

PROSPECTIVE PRODUCTIVE CAPACITY

The key to the world coffee situation has long been found on the production side, reflecting periods of optimism and pessimism, high prices and low prices, which have inevitably led to overplanting (production) and underplanting. For short periods, such as during the latter 1940's when stocks were still ample and European demand was not fully effective, the "key" seemed to be on the consumption side, but was not expected to remain there long.

In addition to the highly variable yield of coffee trees and the influences of weather on the annual crop, a cyclical tendency of alternating periods of overcapacity and undercapacity, as measured by the number of producing trees, has characterized the coffee industry for many decades. Only in recent postwar years have coffee prices equaled and exceeded the high levels of the late 1920's which led to overplanting and chronic overproduction.

The question may now be raised whether the prices of recent years have encouraged new planting, foreshadowing another period of surplus production. The Coffee Board Study of 1948 was unable to throw any light on the subject. Information was too faulty yet "the Board considered this matter so important a factor in the future well-being of the world coffee industry as to require that the Board exercise caution in formulating its final recommendations regarding

years from various urban developments in and around the two great cities of Brazil. Lush profits of the 1920's, of course, brought on the troubles of the 1930's, not only for coffee, but for the Brazilian economy. Former President Dutra seems to have been pointedly correct in his references to the "high-unit-profit mentality" existing in Brazil.

⁴⁴ This plan for Brazilian development in the fields of health, food, transport, and power was reported as fully under way in mid-1950, the Congress having approved expenditures through 1954 of Cr. \$20 billion.

both the need for and the type of inter-governmental cooperation on coffee which will be equitable to consumers and producers."⁴⁵

The Board's study reflected uncertainty despite the rosy near-term outlook for the world coffee industry. It pointed to the capital needed to encourage new plantings and to offset the decline in tree population of recent years, especially in Brazil, and to make better use of fertilizers and replant abandoned areas. It considered the outlook obscured by strong inflationary tendencies, by the counter-attraction of capital toward urban real estate activity in many countries, and by the "inordinately high" profits to be reaped quickly in industrial and mercantile activities in the early postwar years, owing to war-created shortages of many kinds. Furthermore, it noted that political instability, in such an important prewar source of supply as Indonesia, discouraged the capital investment required for the rehabilitation of existing plantations.

Nevertheless, it was recognized, in the analysis prepared for and approved by the Coffee Board, that coffee growing has long been a proved source of profitable investment. High prices and a good outlook would *probably* create new investment and encourage new planting. It was thought that the rate of new investment in coffee would *probably* accelerate as "temporary" inflation conditions subsided.⁴⁶

When the Board, with its official governmental connections, was apparently unable to appraise new planting developments, it seems unlikely that private organizations or individuals can do better.⁴⁷ But clues are available, here and there, and historical precedent permits a few reasoned guesses.

Brazilians have frequently reported widespread abandonment of coffee trees because of high costs and low coffee prices, but competent outside observers are convinced that only unproductive trees have been taken out in recent years. Some feel that very little new planting has occurred despite high coffee prices, that Brazilian growers have "learned a lesson" from the experiences of the 1930's, and the main stimulus of high prices has been better care of existing fazendas. Those following this line of thought usually see little opportunity for expanding coffee acreage in the principal producing countries and

⁴⁵ *Coffee Board Study*, pp. iv-v.

⁴⁶ *Ibid.*, p. 17.

⁴⁷ In 1950 the U.S. Department of Agriculture requested the State Department to have its representatives in the principal producing countries "make a careful study of factors and developments which might help to indicate the probable supply of coffee available for export during each of the next five years." Specifically requested was information on planting since 1945.

contend that, even if a sizable expansion occurs in African colonies, it is unlikely that there will ever again be huge surpluses, as in Brazil during the 1930's.

Yet after the removal of restrictions on new planting in Brazil in 1943, millions of new trees were set out, many of which were in northern Paraná where yields average the highest in the country. More than a year before United States ceiling prices were eliminated, on-the-spot observers reported no complaints from coffee growers on prices. Repeatedly they said that they were "good."⁴⁸ In fact, even then, both farmers' and exporters' prices ruled at the highest levels on record.⁴⁹

As of 1949 the DNC estimate of the number of coffee trees in production in Brazil was 2.3 billion, up about 200 million from the figure officially reported at the end of 1947. This compares with the peak of nearly 3 billion trees in 1933/34 and some 2.3 billion at the end of the war in 1945. Some observers, about this time, forecast a further decline of 1 billion trees over the coming 15 years, leaving the coffee tree population about one-third of its peak by about 1960, unless "radical technical developments or extremely favorable economic conditions" intervened.⁵⁰ Factors responsible for the projected rapid decline were the lack of suitable new coffee lands in a country where agriculture commonly amounted to "mining the soil" and migration was necessarily more or less continuous.

Radical technical developments, especially in Brazil, seem highly unlikely in the coffee industry at this time, but economic conditions, at least in the sense of coffee prices, might be described as "extremely favorable." In the past very favorable prices seem never to have encouraged cultural improvements. New planting, however, has always been the end product of a few years of high and profitable prices. Perhaps opportunities in Brazil are more limited today and

⁴⁸ For some seemingly obscure reason (probably "diplomatic") such reports, made by officials of the United States government stationed in Brazil, to which the author has had access, were regarded as "confidential" and hence cannot be cited. It must be borne in mind that these reports were made during a period of several years when political pressures over the coffee price question were exerted at the highest levels and were not merely a matter of bargaining between producer groups and United States trade organizations.

⁴⁹ Some observers attribute, probably correctly, the high upcountry prices (above United States ceilings), even before the war ended, to an abundance of money in producing areas which could not then be spent, and the desire of many to speculate in coffee as an inflation "hedge."

⁵⁰ The author is not at liberty to cite sources, but has satisfied himself that such forecasts had a fairly wide circulation in industry circles and were sponsored by responsible authorities.

perhaps optimism has expressed itself in other directions. Nevertheless, the number of nonbearing trees (under 4 years of age) in 1949 was reported about 70 percent greater than in 1940-42.⁵¹

In Colombia, the chief rival producing country, new planting of coffee has proceeded consistently for several decades. Perhaps the pace of expansion has slowed in recent years, as the Coffee Board Study (p. 26) suggests, but the evidence is not conclusive. The impression of recent observers is that, if a tree census were taken, the total might be "surprising," and it would be only logical to expect several successive years of export records.⁵²

Likewise, new planting has proceeded regularly in El Salvador. The last census was in 1940, when 126.1 million trees were "counted." As of 1949, officials of the Centro Nacional de Agronomía were said to have estimated the number of bearing trees at 140 million.⁵³

The Coffee Board estimates implied some new planting, although at a reduced rate during 1940-44, for the Dominican Republic, El Salvador, Guatemala, Haiti, Mexico, and Venezuela. These countries were expected to increase production "substantially," as high coffee prices would permit producers to bid for labor which became short during the war.⁵⁴ In 1950 it seemed clear that new planting in these countries would soon result in larger output.

The most pessimistic observers estimate that the remaining available soils for coffee in Brazil will carry 300 to 600 million trees, *under the present system of production*. The qualification is important for, as noted in Chapter 3, in many other coffee-producing countries twice as many trees per acre are planted as in Brazil and yields *per acre* run considerably higher. Restrictions on new planting were in effect during 1932-43. They applied specifically to São Paulo, but allowed expansion in other states such as Espírito Santo, Minas Geraes, and Paraná.⁵⁵

⁵¹ A United States Embassy report (quoted in NCA, *Weekly Letter*, Feb. 24, 1950) states that this was "a result of the profitable level of coffee prices during the past three years," but adds that only in Paraná and Goiás has new planting been "on a scale sufficient to bring about an expansion in coffee."

⁵² *Ibid.*, Apr. 29, 1949.

⁵³ *Ibid.*

⁵⁴ *Coffee Board Study*, pp. 25-27.

⁵⁵ In the older coffee districts of Brazil, sugar cane, cotton, corn, and rice have replaced coffee. "Considering that until only a few years ago these old districts were producing about half of the crops of the State of São Paulo, we realized why the annual output has dwindled so drastically in recent years." In the newer coffee districts of the same state "seasoned coffee men had their misgivings. . . . Although a scant twenty years old on the average, many of these hastily laid out fazendas have now been abandoned. . . . Many fazendas have been planted too low and have been swept away by cold waves, while others have suffered from neglect, from poor soil, or from drought." Nortz, *op. cit.*, p. 3.

Paraná is one of the newest coffee-growing states in Brazil and, during recent years of high coffee prices, has become a factor in the United States market. The chief reason seems to be price, as Paraná coffees have sold under Santos coffees. Their quality is said to have improved, and large chain roaster-and-distributor organizations have purchased and used them in their blends. According to reports on the cultural methods employed (e.g., interplanting of cotton and cereals is done on a "simply colossal scale"), it is somewhat surprising that production has been satisfactory when "mining of the soil" has apparently been so general. Although the state has been "bursting with prosperity" in recent years, cynical observers feel that the industry is insecurely founded and that within 30 years the plantations of Paraná will resemble those of the now practically abandoned Mogyana districts.⁵⁶ Plans and actions toward constructive management of the soil and the forests are apparently not being taken—and Paraná is below the frost line, where the risks in coffee culture are greatest.

Pessimistic forecasts of the future coffee-producing capacity of Brazil seem based very largely upon a projection of trends since the 1930's, the long history of migration of the industry from fertile to marginal soils, and the diversion of interest from coffee. The tree population has declined drastically from the peak (overcapacity) levels of the early 1930's, the remaining trees have aged, the amount of suitable new coffee lands has certainly diminished, and, with the diversification of agriculture and progress in industrialization, alternate opportunities for the employment of capital and labor have increased. This was especially true during the years of low coffee prices; in recent years of record prices, perhaps the alternatives, comparatively speaking, are not as numerous.

In the long history of coffee in Brazil the number of trees increased more or less regularly until 1934 and the importance of coffee in the economy and political development of the country gave it first call on the land and government attention. Always a crop that exploited the land, as indeed is the history of most major Brazilian crops, coffee moved from older areas to newly created frontiers as soils became exhausted and trees died of old age.⁵⁷ Conditions since

⁵⁶ *Ibid.*, p. 6.

⁵⁷ According to a *New York Times* dispatch (Sept. 2, 1949, p. 18), reporting on a visit to Brazilian coffee areas by Teófilo de Andrade, president of the Pan-American Coffee Bureau, growers were now turning "more and more" to the use of fertilizers and soil conservation "instead of just moving on to new lands as they did in the past." Lack of labor, caused by immigration restrictions, was given as a prime reason, plus increasing distances from shipping points.

the early 1930's have provided little incentive for expansion, yet new growing areas continued to replace exhausted areas. The net result, however, was a decline in the productive tree population. New planting has been on poorer soils, yields in general have declined, no improvements have been made in production methods, costs have mounted, and wartime and postwar developments have obscured the true situation. Furthermore, the Brazilians themselves have done their best to "cloud" the facts.

Information on developments in the coffee-growing regions of Africa is less satisfactory than it is for the Americas. The Coffee Board's survey (p. 27), while forecasting an increase in output generally in Africa, expected that British East Africa would account for the largest production gains. (A record crop of 940,000 bags for export was forecast for 1950/51 *vs.* a prewar average of 775,000 bags.) Both native farmers and estate producers were reported as being alert to the possibilities of profit in coffee. Production on native farms in Uganda and Tanganyika was expected to respond quickly to increased prices. Owing to the advanced age of the trees, response might be slower in Kenya.⁵⁸

Output increases of over 100,000 bags annually for 1946-50 over 1940-44 were also forecast for French West Africa, Angola, Belgian Congo, Madagascar, and Ethiopia. A glance at Appendix Table I shows that the Board's estimates were conservative. French West Africa and Angola increased output even more than British East Africa and were fast becoming rivals in importance by 1950.

In Asia the Board also expected substantial gains in Indonesia and India. The 800,000 bag net change forecast for the former Netherlands Indies, however, was from a zero base since no information on exportable production was available for 1940-44. Actually, the prewar average crop was some 1,356,000 bags. The 1949 crop was forecast at 485,000 *vs.* a rough estimate of 380,000 in 1948, with the added comment that probably only 130,000 bags would be exported. Even this quantity would be used domestically were it not for prior commitments and the need for exchange. Apparently political disturbances and high production costs were the main factors discouraging rehabilitation of the estate coffee industry. Planters were reported as turning their attention to cocoa.⁵⁹

Undoubtedly, there has been considerable competition for labor

⁵⁸ Some of the high-grown Kenya coffee was started from the seeds of the famous Blue Mountain growths of Jamaica, while in the lowlands the less desirable *robusta* is grown.

⁵⁹ *Foreign Crops and Markets*, Aug. 8, 1949, pp. 143-44.

in many coffee-growing regions of the world, especially those, as for example, in Africa, where expansion has occurred in tea areas, oil-seeds, and other tropical export crops. On this basis some observers minimize the extent of new plantings of coffee, while others guess that, with established coffee planters' associations in such places as Kenya and the Belgian Congo, coffee interests have been adequately fostered and "surprises" will be in store in a few years when the extent of current planting activity is reflected in increased output.

STATISTICAL INFORMATION. *vs.* PRODUCER PROPAGANDA

Many of the important uncertainties in the coffee outlook are traceable directly to the wholly inadequate factual base of the industry. This long-standing weakness clouds appraisals of future developments, magnifies and distorts the significance of particular events, and leaves an open field for rumor and propaganda. Very little improvement has been shown in this situation during the recent evolution of the world coffee economy. Until a few years ago, in fact, it was a subject seldom mentioned openly, for reasons which will soon become apparent.

The Coffee Board singled out "statistical and related informational services" as one of the four major problems of the world coffee industry. "Accurate and timely statistical information . . . is almost completely lacking for all phases of the industry except that relating to the volume and price of coffee moving in world trade." The study indicated that while the advantages of adequate information and analysis are generally accepted, "groups representing distinct functional interests" desire published data "bearing on all sectors of the industry except their own."⁶⁰ This emphasis on trade secrecy the Board attributed to the intensity of competition that prevailed. It contended that the problem of collecting and publishing information on current market developments could not be solved readily by any intergovernmental organization.

Statistics and related information on coffee production, trade, and consumption are essential to intelligent business planning for producers as well as buyers and distributors. Although many coffee traders are notoriously reluctant to give out information, all seek it and if obtained, they tend to make it a "trade secret." As an aid in the formulation of business plans, coffee interests in consuming countries have always been more aggressive in seeking information than have producers. Some of the most vital information sought (e.g., on

⁶⁰ *Coffee Board Study*, pp. 32-33.

production, stocks), however, is not readily obtainable, originates in many countries with poorly developed statistical services, and is expensive and difficult to compile. Under such circumstances facts tend to be few, while estimates ("official" or otherwise) are plentiful and frequently contradictory.

Producers long ago discovered the uses to which buyers' eagerness for information might be put, especially when the recipients were slow to share it with others. As governments in producing countries became the representatives of producer interests, the techniques used by private traders became the "official" techniques of state and national governments. Although this has been a matter of common knowledge for many years, it has been a matter of record for relatively few.

Attempts to "slant" information on coffee developments in producing countries, always for the ultimate purpose of influencing coffee prices, have been so frequent that justifiable doubt is cast on many reports emanating from these countries, regardless of source. Much of it is correctly labeled "producer propaganda," and its purpose is usually clear. Some is a deliberate distortion or misrepresentation of facts, and some merely the withholding of information likely to be of value to buyers.

Nearly all Brazilian sources have been historically pessimistic on crop prospects. Early reports on flowering of the coffee trees and on weather developments tend to be on the unfavorable side. Damage from frost, drought, and disease are invariably exaggerated. Statistics of production from different government sources have shown wide discrepancies. The embarrassment of huge stocks in the 1930's led to the withholding of information on their size, much speculation as to their condition, and general uncertainty in appraising them as a market factor. The operations of the DNC were often cloaked in mystery, and general conditions on fazendas have been reported unfavorably in order to support pessimism on crop prospects. About the only exception to this general tendency is that the *quality* of the current or prospective crop is usually appraised favorably.

Examples, illustrating and supporting the above observations, need not be cited extensively, for, in recent years, nationals of the coffee-producing countries concerned have themselves become fully aware of the polite distrust generated in coffee-consuming countries by "producer propaganda." A special dispatch from Rio de Janeiro to the *New York Times*, under the date line July 25, 1947, reads in part as follows:

Speculators, maneuvering behind the Government departments to give more weight to their statements, were responsible for wrong information regarding the coffee crop of 1946-47. Economic columnist Theophilo De Andrade, formerly an official of the National Coffee Department, so wrote in the *Jornal* today. . . . He says, "the São Paulo crop was estimated at 7,000,000 bags" but there was a director in the National Coffee Department who reflected the thoughts of the speculators and reduced the crop by 900,000 bags, while still worse in São Paulo "the Sociedade Rural Brasileira was broadcasting that the crop would not attain 5,000,000 bags." . . . The São Paulo crop was exactly 8,936,496 bags. . . . "Deputy Ary Viana in the House of Representatives, based on foreign data, declared that remnants of the old crops were up July 13 3,000,000 bags, whereas this correspondent can affirm that remnants in interior points of the coffee states before June 30 were 6,219,090 bags."⁶¹

About the same time Alcen Martins Parreira, president of the Santos Commercial Association, told members upon his return from a visit to the United States:

. . . after what happened in the matter of sales of the DNC, which first were denied and later on confirmed officially, there is a general scepticism in the United States in reference to all news coming from Brazil, and some merchants have assured me . . . that it was incredible that Brazil should try to support the market by means of cable advices.⁶²

This feeling of polite distrust is expressed in many ways. For example, in reporting impressions during early 1947 on a flying visit over Brazil, Paul Nortz, in commenting on various coffee-growing areas, some of which were surprisingly run down or abandoned, had this to say with reference to the Marília-Garças district which seemed "the most prosperous and promising coffee district of them all": ". . . we noticed that our host had discreetly and with Brazilian finesse, headed the aircraft for higher altitudes, lest we be too impressed by what we saw, and lest we might get notions that the coffee plantations in São Paulo were in a better shape than appeared on the first days of our excursion."⁶³

In connection with an official report that Brazil's exportable production for 1949 would be about 14 percent under that of 1948, Raul Machado, chief statistician of the National Coffee Bureau, felt obliged to deny "comment voiced in New York that Brazil was holding back coffee from the export market in the hope of realizing higher prices

⁶¹ *New York Times*, July 26, 1947, p. 17.

⁶² Translation of remarks, as given in the *Tea and Coffee Trade Journal*, August 1947, p. 22.

⁶³ Nortz, *op. cit.*, p. 3.

from later sales in Europe.”⁶⁴ Observing the revision in estimates of the Brazilian crop for 1950 within a few months following the “famine scare” of late 1949 (from the 12–13 to the 13–15 million bag range), one business weekly added:

Early crop estimates from Brazil . . . almost invariably are smaller than the actual outturn. . . . Early ideas about the 1949 crop . . . turned out to be around 2½ million bags short. . . .⁶⁵

These few examples of Brazilian–United States coffee relationships are given only to make a point that seems worth establishing: The world coffee industry can hardly be characterized as “mature” so long as such outmoded standards of business conduct prevail. In recent years Brazil has found numerous emulators, especially in Colombia. A producing country must be of sufficient importance as a market factor before its maneuvering and propaganda are taken seriously. The smaller producers, however, join with the large in any popular cause such as forcing up coffee prices by withholding supplies, the establishment of minimum export prices, and so on. “Justifying” price increases for a wide variety of reasons is also popular.⁶⁶

There seems to be no early prospect of replacing producer propaganda with sound statistical information. Nor does it seem likely that the coffee industry can soon enjoy normal buyer-seller relationships (with a certain amount of jockeying expected) because governments are too deeply involved.⁶⁷ Hence, distinctions between private

⁶⁴ Associated Press dispatch from Rio de Janeiro, *Wall Street Journal*, Aug. 29, 1949.

⁶⁵ *Barron's*, Jan. 9, 1950, p. 33.

⁶⁶ Sample argument of 1947 which has been used for many years: “Representatives of the producing countries told the [National Coffee Association] convention that a fair price for coffee is essential to the absolutely urgent need for improvement in the standard of living in the coffee-producing countries. The delegates from Brazil, Colombia, Mexico, and the Central American countries called attention to the fact that continued starvation-living standard in Latin America, as a result of low coffee prices and high production cost, had created serious economic and social problems. . . .” *Coffee Newsletter* (published by the Pan-American Coffee Bureau with cooperation of the NCA), October 1947. Arcesio Londono Palacio, president of the Coffee Exporters Association in Colombia, contended that coffee prices had not risen enough, “citing as an example the fact that in 1925 a U.S. automobile worth \$450 could be purchased with 20 bags of coffee while at present 100 bags of coffee are needed to purchase the same automobile.” *Tea and Coffee Trade Journal*, October 1947, p. 48.

⁶⁷ In commenting on the outlook upon the liquidation of the DNC stocks in Brazil one observer reports in a market letter: “Nobody in Brazil is naïve enough to suppose that this will be the end of a great and exceedingly costly experiment. . . . It is generally assumed that later on the old State Institutes will be revived or similar

and "official" information will probably remain "fuzzy." And the basis for a stable, mature world coffee industry will remain lacking in important respects.

The events of late 1949 provide the most recent illustration of the difficulties and complications in economic and political relationships that can arise over coffee. Reports of shortages sent coffee prices soaring to record highs. The Pan-American Coffee Bureau took newspaper space to explain everything in terms of "bad weather." But Senator Gillette's special investigating subcommittee disagreed, and said so flatly in its report of June 1950.⁶⁸

Contending that there had been no genuine shortage of coffee, the committee blamed high prices principally on Brazilian speculative interests that created a synthetic one by withholding large stocks from the United States market.⁶⁹ They were thus able to reap huge profits by trading in futures on the New York market. Hints were dropped that a few large commodity dealers in the United States were in on the rigging, and the subcommittee recommended that the unregulated New York Coffee and Sugar Exchange be placed under the control of the Commodity Exchange Administration. In order to curb speculation it advocated greatly increased margin requirements, a capital gains withholding tax on trading profits made by foreign speculators, and the amendment of certain trading rules which give large Brazilian interests undue control over the New York market.⁷⁰

agencies will be created." Nortz & Co., *Some Brazilian Postwar Problems*, End of March 1948. A bill providing for a new Coffee Institute was presented to the Brazilian Congress in 1948, but was not pressed in view of the favorable outlook for the industry.

⁶⁸ *Utilization of Farm Crops: Price Spreads—Coffee* (Report of a Subcommittee of the Committee on Agriculture and Forestry, U.S. Senate, 81st Cong., 2d sess.).

⁶⁹ Coffee growers as such were not censured but speculators, exporters, and importers were. The Bank of Brazil and the policies it had pursued were also criticized. The attitude of the investigating group toward the coffee producer is perhaps expressed by this paragraph (p. 13) from its report:

"Throughout the difficulties over the price of coffee there is no doubt but that the official Bank of Brazil rate of about 18 cruzeiros to our United States dollar, while the going or street rate ranged from 26 to 35 cruzeiros to the United States dollar has had a bad effect. The Bank of Brazil insists on payments in dollars at the pegged rate. The coffee producer is actually securing in value about half this United States dollar for his coffee. Little wonder that the coffee producer believes his coffee prices are not out of line. Likewise the coffee producer gets just as valuable a cruzeiro for his coffee sold to soft-currency countries as to hard. If the Brazilian coffee farmer actually received the value for his coffee at the present rate of twice the official exchange rate he would be getting twice what he now does for his coffee."

The same situation was described as prevailing in Colombia where a similar disparity is permitted between the pegged and the going or street value of the peso (p. 21 of the report).

⁷⁰ This influence was possible partly because futures contracts in New York

The recommendations of the Senate subcommittee went even further.⁷¹ *Time* described its report as a "buckshot blast at high coffee prices," which it was.

Latin America reacted with its loudest collective yelp in years. By accusing the *latinos* of rigging the coffee market and by bluntly suggesting some undiplomatic ways to force prices down again (e.g., "scrutinizing loans to coffee countries, encouraging production in other countries, policing the coffee trade, etc."), Iowa's Senator Guy Gillette had managed to wound the good neighbors' sensitive pride and threaten their pocketbooks as well.⁷²

Press reaction in Latin America was violent and angry. Soon the coffee-country ambassadors were rushing into action with rebuttals, emphasizing and defending the rise in coffee prices as "the natural consequence of the law of supply and demand." But as long as coffee prices in the United States continued around the 80-cent retail level, the Latin-American producing countries were enjoying "what one cynical ambassador had called 'a Marshall Plan of our own,' " something to which they had aspired earlier.

The coffee producers found an ally in the U.S. State Department which feared "to upset Good Neighbor relations." It was agreed to "soften" the Gillette subcommittee "blast," but the diluted version, which was approved by the Senate committee in August, still did not completely satisfy Latin-American coffee interests or the State Department.⁷³ However, by this time coffee prices were moving upward again to new highs (along with most other commodities) as the result of the Korean war and inflation fears. Too many other problems and worries presented themselves at this time to justify pursuing the coffee-price issue. Hence, it was largely forgotten, except by consumers who were forced to reduce their level of coffee consumption.

called for delivery of only certain types of Santos coffee. As a result of the investigation the New York Coffee and Sugar Exchange adopted a new "U" contract in September 1950 and also modified (liberalized) the old "S" contract. The new contract made coffee (corresponding to the basic exchange standard type 4) from other countries deliverable, and largely eliminated "squeeze" possibilities. The Senate Agricultural Subcommittee had recommended discontinuance of both the "D" and "S" form of contract, and the substitution of a "U" (universal) type of contract.

⁷¹ *Utilization of Farm Crops: Price Spreads—Coffee*, pp. 40-42.

⁷² *Time*, June 26, 1950, p. 30.

⁷³ The revised report made a new recommendation suggesting that the Attorney General investigate the sales and storage practices in the United States of the National Federation of Coffee Growers of Colombia (and other foreign interests), and take any appropriate action under antitrust laws.

PART II
TEA

CHAPTER 7

DEVELOPMENT AND CHARACTERISTICS OF THE TEA INDUSTRY

World War II left its mark on the world tea industry and trade in several important and significant respects. Japanese conquests in the Far East deprived overseas markets of supplies from some main producing areas and created a world shortage of tea that extended well into the postwar period. Political changes and disturbances complicated an early resumption of prewar patterns of trade and permanently altered some of the relationships between producers, local governments, and buyers.

Unlike producers of coffee and cocoa who looked forward to, and welcomed, scarcity on an indefinite basis, tea interests had no illusions; they did not expect the world tea shortage to last long. They anticipated an early return to prewar conditions, under which international regulation of exports was considered necessary and desirable in order to keep supply and demand in reasonable balance.

As the most widely used beverage in the world today, tea is the end product of a commodity of the same name, the production and distribution of which has long since established a commercial "industry" and "trade" of considerable maturity. In fact, the tea business has sometimes been described as being "always conducted . . . in a gentlemanly, conservative manner, as unchanging as the ritual of tea drinking." Compared with most agricultural industries of world importance, the commercial tea industry has achieved a relatively high degree of stability. But World War II left it in several ways less stable than before, and less free to make its own adjustments and control its destiny.

Tea is typically a crop of the Far East and of countries possessing an abundant supply of labor. Very little tea is grown outside of Asia—principally in British East Africa—and that production is scattered. China is still a leading producer of tea, but today is no longer an important factor in world trade because most of its output is consumed at home. Similarly, Japanese production is largely for domestic use rather than for export. China, Japan, and the former Japanese colony of Taiwan (Formosa)—commonly termed "green-tea countries"—together accounted for less than one-fifth of world primary

exports of tea before World War II. Today the proportion is much smaller—roughly 6 percent. About four-fifths of all overseas exports came from India, Ceylon, Java, and Sumatra—the “black-tea countries.” Today the dominance of these producers is greater than ever before.

Tea consumed outside the Orient in recent decades has been largely the product of estates in the black-tea countries. When reference is made to the “tea industry,” most people mean the commercial tea industry of India and Pakistan, Ceylon, and Indonesia, or they mean that part of aggregate world production which enters into overseas foreign trade, whether originating in black- or green-tea countries. Thus, the growing output of the Soviet Union is not included in commercial tea production, for it still falls short of domestic requirements and the U.S.S.R. remains an importer of tea.

Until the war, the commercial tea industry and international trade in tea were predominantly British, secondarily Dutch, and to a much lesser extent divided among the green-tea countries. Under war conditions, production and trade came to be exclusively British, with only Empire sources remaining to supply Western demand.

RISE OF THE MODERN TEA TRADE

Until the last quarter of the nineteenth century, China was the principal source of the world's tea supply and almost the only source for the West. The Dutch introduced tea to Europe in the seventeenth century, more than a thousand years after it had become an article of commerce in China.¹ But only in the eighteenth and nineteenth centuries did tea drinking become widely popular in the Western world. The British acquired the habit and spread it throughout their Empire in the course of its development. Tea was introduced in the coffee-houses which opened in England about 1650, and, although coffee was the favorite beverage for over half a century, it was gradually displaced by tea.

The China trade began to decline after the British had become established tea growers themselves, first in India with the indigenous teas of Assam and later in Ceylon when its coffee industry was ruined by disease.² Chinese tea exports reached their peak, about 295 million pounds, in 1886; during 1909–13 they averaged 199 million; in

¹ Tea reaching Europe was transported by ship around Africa, but in 1618 the first tea caravan from China established an overland route that was destined to make Russia one of the great tea-drinking countries.

² The beginning of tea production in the British Empire coincided with the beginning of the Victorian era. The first sample of Assam tea was sent to London in 1836, and the first India tea company was formed in 1839. At this time per capita

1928-32 they had fallen to an average of 105 million; and immediately before World War II (1935-39) they averaged only about 80 million pounds.³

The foundation of the British and Dutch industries was the discovery of an indigenous tea in Assam early in the nineteenth century. Many attempts to introduce the Chinese plant into India and the Netherlands Indies had failed, but success attended efforts with the Indian variety. Tea became one of the commodities identified with British and Dutch colonial development. The application of science and management to tea production and distribution resulted in improved methods and products. The less progressive Chinese, heavily burdened by many forms of taxes on tea, gradually lost their position in the world tea trade as demand shifted to favor Empire-grown black teas.

The long and gradual decline in exports of tea from the Sino-Japanese tea belt and the rise in shipments from the newer British and Dutch plantations since the turn of the century are shown graphically in Chart 6. Exports of all kinds of tea from primary producing countries⁴ have varied as follows:

Period	Million pounds	Period	Million pounds
1900-04	623	1925-29	897
1905-09	704	1930-34	889
1910-14	785	1935-39	876
1915-19	858	1940-44	790
1920-24	724	1945-49	766

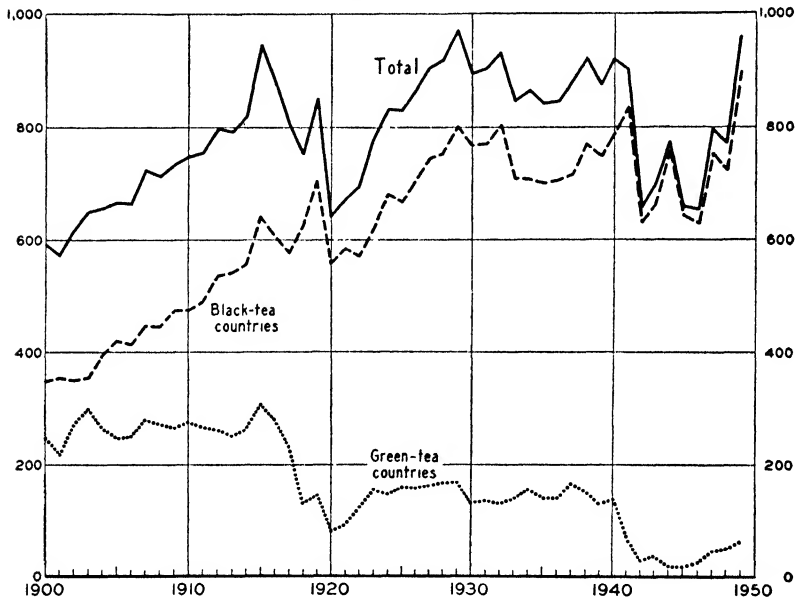
consumption in the United Kingdom amounted to about 1.2 pounds annually. By 1854 Indian exports reached 250,000 pounds, and per capita consumption had doubled. By 1866 exports had increased tenfold, and consumption in the United Kingdom had doubled again. (This was about the same time that Chinese exports reached their peak.) At the close of the century, per capita consumption was just over 6 pounds. In recent years it has averaged around 9 pounds annually.

³ Of the 89 million pounds exported in 1937, approximately 19 million pounds was brick tea, a special overland trade at one time of much greater importance. Before World War I, Chinese exports of brick, tablet, and dust amounted to over 80 million pounds annually. Most of this trade was with Russia and Tibet. Even at this time, however, Russian demand had begun to shift to leaf teas, at the same time that strong black teas came to predominate in the United Kingdom, Australia, and New Zealand markets. During recent decades the fluctuations in Chinese exports of tea have been due mainly to fluctuations in Russian demand. Since 1937 exports of brick tea have declined drastically—to only a few million pounds.

⁴ Some tea is reshipped from importing countries. The re-export trade from the United Kingdom averaged some 88 million pounds in 1925-29, but thereafter tended to decline, along with the contraction in volume of the world tea trade. In 1938 re-exports from the United Kingdom had fallen to 66 million pounds. They dropped further to around 7 million pounds during the war years 1942-44, but had recovered to about 13 million pounds by 1950.

The trend in aggregate exports was irregularly upward, from the 600-million-pound level at the opening of the century until 1929, when an all-time peak of 968 million pounds was reached. Since then they have shown no comparable growth, although in 1938, after five years of regulation under the International Tea Regulation Scheme, exports had exceeded, at 922 million pounds, the high *average* level of the late 1920's.

CHART 6.—EXPORTS FROM BLACK- AND GREEN-TEA COUNTRIES,
1900-49*
(Million pounds)

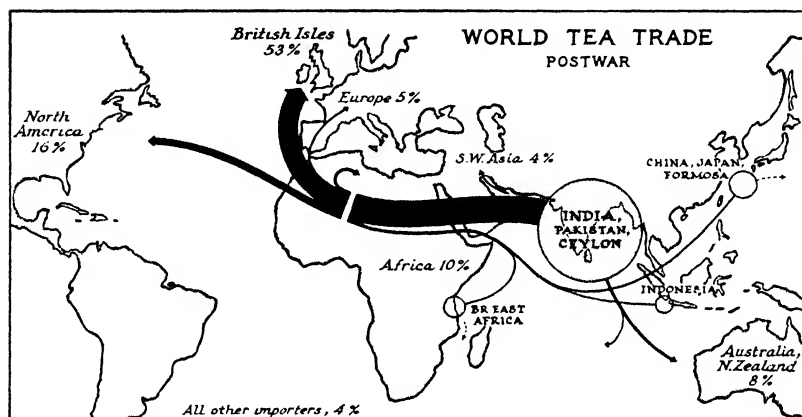


* Data from official sources through 1926; from International Tea Committee thereafter. Until 1922 the curve "Black-tea countries" includes India, Ceylon, and the Netherlands Indies only. Thereafter exports from other miscellaneous sources, principally British East Africa, begin to show up and are included in the totals. The curve for "Green-tea countries" is a summation of the exports from China, Japan, and Formosa. The total amount of black tea exported is somewhat higher than indicated by the curve for black-tea countries, because some of the exports from the green-tea countries have been black tea.

Aggregate tea exports were relatively well maintained in the early years of World War II, but fell notably as the war spread to the Pacific, and as the green-tea countries and the Netherlands Indies no longer participated actively in the trade. Incomplete returns for the war years 1942-45 suggest that world tea exports dropped to an average of around 700 million pounds, the lowest since 1905-09. The

trade was primarily between British Commonwealth countries, with the United States a secondary participant. Recovery did not set in until 1947, when exports of tea rose to some 796 million pounds. By 1949, as tea supplies became more plentiful, exports rose to near-record levels. Map 5 is designed to provide a summary view of the direction and relative volume of the international trade in tea as constituted in the postwar period of recovery.

MAP 5



RELATIVE STABILITY OF SUPPLY-DEMAND CONDITIONS

Influences that have made for stability within the commercial tea industry are important and fairly numerous. The supply of tea ordinarily varies from year to year within comparatively moderate limits, while the demand for tea is quite inelastic. Price changes within a rather wide range produce relatively small variations in the volume of tea consumed. The market for tea, therefore, is reasonably predictable over a period of several years. A cup of tea is one of the least expensive of all beverages, and tea drinking tends to become a habit so firmly established among users that the response of tea consumption to changes in income of the consuming group is not pronounced.

Over two-thirds of the Western market for tea is found within the British Commonwealth. By far the most important single outlet for tea moving in international trade is the United Kingdom, with its high per capita consumption of (normally) around 9 pounds annually. Since most teas yield from 180 to 200 cups of beverage per pound of

leaf, this means a tea consumption equivalent to about 5 cups per head each day.⁵ Other countries with a high per capita consumption are Australia, New Zealand, and Ireland. Among the Western markets, the United States ranks second in aggregate consumption, but on a per capita basis only about half a pound has been consumed in recent years.

Within each tea-producing country there are also tea markets of growing importance which are no longer served to any great extent by international trade. India, for example, has an extremely low per capita consumption, but her population is so large that in recent years the Indian market has absorbed more tea than any of the international markets outside the United Kingdom.

Although the consumption of tea tends to be fairly constant, production varies from season to season. Variations in the yield of the tea plant, however, are not wide, and production can be adjusted by lighter or heavier plucking, i.e., by picking fewer or more leaves. Weather influences upon yields, which are so important in the output of grain or fruit crops, are occasionally substantial. They tend to affect the quality of the crop as well as its volume. To a considerable extent, however, weather influences upon volume of output can be compensated for without creating serious problems of disposition or storage. This extremely important advantage is possessed by few other crops.

Finer or lighter plucking of the tea plant may be employed to curtail output and to avoid the creation of surplus supplies. Fine plucking has the important additional virtue of improving quality, since only the small, tender leaves are taken. If, on the other hand, tea supplies need to be increased, a rather remarkable expansion in output is feasible by coarser plucking, by the application of more fertilizer, and by plucking areas that have been "resting" to allow better growth. This was demonstrated during the war when, after Java and Sumatra were occupied by the Japanese and teas from the Netherlands Indies were no longer available, India and Ceylon very largely made up the deficit in supply thus created.⁶

⁵ During the war and postwar years of tea shortage, the yield in cups per pound of tea was considerably higher, as consumers made a weaker brew in order to stretch their ration.

⁶ This deficit amounted to around 150 million pounds annually. India alone produced 573 million pounds of tea in the crop year 1942/43, an increase of approximately 148 million pounds over prewar output. Ceylon produced 291 million pounds of tea in 1942, or 49 million pounds more than the average output of 1938 and 1939. By 1949, with only a very small increase in acreage, these countries (now including Pakistan) produced a record crop of 931 million pounds as against prewar production of 656 million.

Theoretically, conditions of demand and supply make possible a high degree of market balance and price stability in the tea industry. In the past, however, unbalance has developed which could be corrected quickly only by co-operative action among growers in the chief rival producing countries. The relative ease with which output can be controlled, however, is an important advantage which makes the potential stability of the tea industry even greater than that experienced during recent decades.

MATURITY AND ORGANIZATION OF THE INDUSTRY

Other influences making for stability in the commercial tea industry are the time, capital, and skill needed for developing profitable tea gardens. Three or four years are required to bring the tea plant into bearing and six to ten years fully to establish an estate. Additions to productive capacity thus tend to be made slowly, resulting in considerable stability in the acreage devoted to tea culture. Surplus capacity is likely to arise only after a fairly prolonged period of high tea prices. Once additions have been made, however, capacity is not readily contracted when market conditions become unfavorable.

In the immediate prewar period the cost of opening a tea estate was thought to be around £100 an acre. Such an estimate was of limited significance, however, since under regulation no sizable new estates had been established since 1933, when conditions were quite different. A decade later (but still with no reliable information based upon recent experience), it was believed that the average cost of opening and equipping an estate of, say, 700 to 1,000 acres would be no less than £300 per acre in India, and perhaps £350 in Ceylon.⁷ As of 1949, opinion among planting interests seemed to be that, even with the then current high prices for tea, it would be uneconomic to develop new estates on the basis of prevailing labor and material costs; it seemed doubtful that a dividend could be earned on a cost structure some three times that of 1938-39.

Since both capital and labor requirements for commercial tea culture are large, the plantation system of operation has become typical of the industry. This is an element of stability. Before the

⁷ Information and cost estimates from several sources probably as "authoritative" as is possible to secure, but which cannot be cited. Some of the estimates were worked out in considerable detail, but the range was wide, especially for recent years. Although there was little disagreement with the *average* figures for prewar, various estimates for years from 1945 to 1949 (a period of still rising costs) ranged between £217 and £390 per acre. All informants were careful to point out the difficulties of making estimates and the wide range to be expected under any circumstances. Ex-

war a large measure of control was possible through London, center of the world tea trade, and through Amsterdam, the financial center for the controlling interests of the Indies plantations. Although control is no longer so positive, British and Dutch influence remains dominant. The commercial tea industry is well established, the leading companies are old, and their shares enjoy high investment status among investors.⁸

British domination of the production, manufacture, transport, and distribution of tea, acquired within the past century, is still probably greater than that for any other commodity of like international importance. Although India, Pakistan, and Ceylon are now self-governing, control over the administration of the tea industry has remained unaltered. British influence is powerful and will probably continue to be felt for many years. Under such circumstances, conflicting interests within the world of tea tend to be more easily harmonized than when producers and consumers have quite different national interests.

Although the somewhat monopolistic advantages long enjoyed by the British were enormous, competition was not eliminated. Before the war, the Dutch, with their teas from Java and Sumatra, pro-

amples of changes in the approximate costs of certain items making up the total are given as follows:

	1938	1948
Tea roller (£'s)	250-75	775-800
Leaf house (Annas per sq. ft.)	12	40
Laborers' dwelling (Rupees)	125 (India)	900 ^a
	200-50 (Ceylon)	
Per acre costs (Ceylon)		
Clearing, planting, and bringing into bearing (Rs.)	600	1800
Factory and machinery (Rs.)	400	1000
"Lines" (land and housing for laborers) (Rs.)	250	800 ^b
Sundry estate buildings (Rs.)	130	205

^a The extra cost of housing is said to be due largely to improved "standards."

^b Housing requirements are calculated as follows: a working force of 1,000 laborers required for 1,000 acres, but a total population of 1,600 persons must be housed. At 3.5 people per room and at a cost of Rs.1,750 per room, the per acre cost works out at Rs.800.

At the beginning of 1951, it was thought that the probable cost of opening an estate in Ceylon and bringing it to maturity had risen to around £500 per acre. In all cases the estimates given above exclude the cost of land.

⁸ "Booms and slumps notwithstanding, the tea plantation industry has rightly come to be regarded as one of the most stable industries, and tea shares are bought as an investment rather than for speculation." *Economist* (London), Jan. 14, 1939, p. 78. The specific reference was to companies operating in India. Owing to political changes in recent years, some investors no longer place such high appraisals on tea shares.

vided price competition on medium- and lower-grade black teas in many markets. China, long the principal source of the world's tea supply, was no longer an important competitor, because demand for the more delicate black, oolong, and green teas had been declining for many years. Japan and Formosa offered competition in the United States market with green and oolong teas, but here again the shift in consumer preference to stronger black teas favored the output of India, Ceylon, and the Netherlands Indies.

Organization of producers and buyers. — Under the plantation system of operation, with estates owned or managed by comparatively few companies, the commercial tea industry is far more easily organized than are industries made up of a large number of individual producers. Co-operative activities are of long standing. Many years ago common problems brought competitors together within each producing country for purposes of recruiting labor, regulating its supply, and providing medical services on plantations. Producers later banded together for the purposes of engaging in technological research and propaganda to increase tea consumption. Associations of tea companies, individual estate owners, and managers and agents have been the focuses for such co-operative activity.

Although tea producers have combined in associations for specific purposes, the concentration among producers apparently does not approach that among buyers. An "outstanding feature" of the London tea market has been the high concentration of buying in the hands of a few powerful combinations — principally blenders and distributors of proprietary blends. It was estimated some years ago that 70 percent of the domestic distributing trade was in the hands of only four combinations.⁹ The concentration may not be quite as great today, yet the competitive pattern was "frozen" for over a decade and interim changes cannot have been great.¹⁰ While the Ministry of Food remained the sole buyer of tea, and the London auctions were closed, there was, of course, no significance to be attached to the high concentration of buyers in the London market.

The British wartime controls over the tea trade, and continua-

⁹ Great Britain, Imperial Economic Committee, *Tea* (18th Report, 1931), p. 23.

¹⁰ Some factors in the London trade describe the prewar dominance of a few large buyers as a "myth." While admitting several attempts to "rig" the market, they do not feel that these efforts met with any genuine success. They argue that there have always been many small buyers; all (large and small) operated through the auction markets; and, since sellers (i.e., producers) marketed through associations which carefully regulated the flow of offerings, large buyers could not hold off for long, if they were to keep proper balance (kinds, qualities, and so on) in their inventories.

tion of controls into the postwar period, altered the role of London as the center of this trade. Before the war a certain proportion of the tea output of India, Ceylon, and the Netherlands Indies was marketed locally, but by far the greater part of each year's crop found its way to London where it was sold at public auction. During the war the British Ministry of Food was the sole buyer and distributor of world tea supplies. After the war, and when other countries had withdrawn from the bulk-purchase scheme, the British continued it on their own behalf.

While the London market remained closed, auctions were resumed in January 1947 in both Calcutta and Colombo. This new development was considered a definite threat to London leadership, although it was recognized that, despite the existence of free markets in the producing countries, their lack of facilities (and of climatic conditions conducive to storage) would militate against a permanent shift in the center of the tea trade. It was not until April 1951 that the London market was reopened on a restricted basis.

With the United Kingdom alone absorbing half the world tea exports and normally re-exporting more than most individual countries import, it was natural for the "world price" of tea to be "made" in London. The United Kingdom remains the greatest import market and the logical center of the trade. When government controls are completely eliminated, the presence of strong producer organizations and concentration of buyers in London will undoubtedly again have a significant influence on world tea prices.

International regulation.—Countries with the greatest financial stake in an industry inevitably take the initiative in attempts at international control. Until 1933 the British were unsuccessful in securing the co-operation of rival Dutch tea interests in schemes for restricting output. Without inclusion of their chief competitor, an international agreement stood little chance of success. Unwillingness to co-operate on the part of other tea-producing countries, such as China and Japan, however, was not essential to the operation of the Tea Regulation Scheme, which dominated developments in the tea world in the years prior to the war.

The well developed organization of the tea industry within each of the principal producing countries greatly facilitated the reaching of agreement to regulate exports in 1933. Later, after producers were able to agree upon a general policy of international co-operation, the same organizations contributed to the successful execution of the control program.

Shortly after the International Tea Regulation Scheme went into effect, a noted British journal commented:

Producers of commodities like wheat and sugar may envy the facility with which the tea growing industry, a few months ago, having made up its mind that regulation and salvation were synonymous, succeeded in drawing up a workable scheme, securing the necessary Government legislation, applying its terms, and obtaining a 30 per cent. rise in average tea prices and a 90 per cent. enhancement of tea share values—all within the space of little more than six months.¹¹

This performance and the subsequent record of results (considered elsewhere) can be attributed partly to the nature of the tea industry itself, its organization and financial control, and partly to the characteristics of the demand for tea and the facility with which market supplies can be regulated.

The machinery of international regulation has been kept intact by successive renewals and extensions of the original Agreement. Since 1942, however, when Java and Sumatra fell to the Japanese, a world shortage of tea has existed, and hence there has been no need to restrict production or exports. Most producers foresaw the time in the not distant future when such restriction would again be needed. When this time came they wanted to be prepared. Unlike coffee producers, their interest in agreements for the purpose of "stabilizing" the market seems to be a continuing one. The tea producers' definition of stability, furthermore, seems to be not necessarily "higher prices."

Tea producers, in fact, seem more alert to their own problems than do either coffee or cocoa growers. Perhaps this reflects the maturity of the industry; but it may be recognition of the gains in consumption that competing beverages have made, partly at the expense of tea. Tea interests resented the postwar continuation of government controls, the bulk-buying policy of the British government, and the slowness in reopening the London auction market. But they were alert to their weaknesses in marketing, the deterioration in the quality of their product, and the inroads made by competitive beverages. Their promotional efforts on behalf of tea were wide in scope, and they realized that the green-tea producing countries might revive their exports and create surpluses such as existed in the early 1930's. Adjustments necessitated by changed political relationships in the producing areas, and rising costs, also tended to keep tea producers alive to the problems of postwar reorientation (Chapter 11).

¹¹ *Economist*, Aug. 26, 1933, p. 414.

WAR-IMPOSED WORLD SHORTAGE OF TEA

Java and Sumatra supplied the Western world with 17-18 percent of its tea in the years immediately preceding World War II; and China, Japan, Formosa, and French Indo-China accounted for another 17 percent of aggregate world exports. All of these suppliers became inaccessible after 1942. While India, Ceylon, and British East Africa largely compensated for the loss of the Netherlands Indies output, an almost equal portion of aggregate world demand was forcibly shifted from green- to black-tea countries, thus leaving a substantial deficit in over-all supplies.

In postwar years political disturbances retarded recovery not only in Indonesia but in most of the other supply sources that had also been effectively closed. It was the absence of black-tea exports from Java and Sumatra, however, that contributed most to the temporary world tea shortage. By this time demand had shifted so far away from the green and oolong teas that the slow recovery of green-tea producers was not an important factor in the market situation. It was generally believed that tea supplies would again be adequate soon after the opening of the 1950 decade.

During the latter part of 1948 the International Tea Committee forecast an end of the world tea shortage by 1950. Early in 1949, however, its estimates of Indonesian production were reduced, owing to continued political uncertainties in the Islands, and its figure for potential absorption was increased. These adjustments set ahead to 1951 the year in which it foresaw approximate balance between world supplies and absorption. Its annual report for the year ending March 31, 1950 continued this forecast "unless unpredictable contingencies intervene." The Committee's estimates,¹² in million pounds, were as shown in the table on the following page. Apparently a surplus had developed in 1950 for the first time since 1939. Some trade estimates in mid-1950 placed it at around 15 million pounds rather than the Committee's 25 million. In any event an approximate balance between demand and supply seemed near.

Although tea supplies were short for several years after the war, tea prices did not increase in spectacular fashion as cocoa and coffee prices did. This was due chiefly to three factors: continued control over the United Kingdom market by government authorities, the

¹² Tea Information Service, *International Bulletin*, May 1950. Revised estimates appearing in the October 1950 issue "more than strengthened" the impression that equilibrium would be restored in 1951. The estimated surpluses for 1950 and 1951 were increased to 64 and 34 million pounds.

	1934-38 Actual	1949 Prov.	1950 Est.	1951 Est.	1953 Potential
Supply					
"Regulating countries"					
(production)	825	1,022	1,055	1,080	1,140
Other countries (exports)	156	70	70	85	110
Total	981	1,092	1,125	1,165	1,250
Absorption					
Importing countries	864	913	906	951	996
Major producing countries	112	191	194	211	240
Total	976	1,104	1,100	1,162	1,236
Excess of supply over absorption	+5	-12	+25	+3	+14

policy of contracting with producing countries for all requirements, and rationing.

Until the world tea shortage was eased, ample stocks were built up in London, and a regular flow of supplies was assured, the world tea market would not be a free market. Many in the trade felt that the sooner controls were removed, the better it would be for the industry. They argued that prices would seek a level that would equate supply and demand, thus ending the shortage. Considering the importance of tea to the British consumer (and voter), the government did not wish to risk a free-market solution.

SOME PROBLEMS AND FACTORS IN THE TEA SITUATION

Approximation of balance between world tea supplies and potential absorption would return the tea industry to its prewar statistical position, and would probably soon result in the elimination of government controls, the reopening of the London market, and the reimposition of the International Tea Exports Regulation Scheme. Resemblance to the prewar tea situation, except for these and related developments, probably ends here. New factors not present a decade ago have been, or will be, introduced.

The strength of the tea market in the late 1940's was attributed to unsettled conditions in Indonesia which made for a slow revival of exports; continued shortage, involving tea rationing in Great Britain, Ireland, and Australia; pent-up demand inside India, the second largest tea market; and high purchasing pressure by Middle East and African countries.¹⁸ But tea was still the cheapest beverage

¹⁸ *Tea & Rubber Mail* (London), Mar. 31, 1949, p. 113.

available despite its increase in price. The world supply position was not then greatly affected by prospects in China, Japan, and Formosa.

Such influences on the tea market were not likely to last long, but others seemed destined to continue for an indefinite period. Tea production costs, for example, rose throughout the war and the early postwar period. The most important expense of production is for the wages of labor. Aside from social legislation, costs were increased by radical changes in the method of paying workers, necessitated by the wartime increase in the cost of living. The tea industry arranged to supply its workers with such essentials as food and clothing at concession rates. After the war, uncertainties in supplies and instability of prices led to a continuation of this system. At the close of the 1940 decade most tea-garden workers still received a considerable portion of their wages in kind. Improvement in the world rice-supply situation would have a marked effect on such costs; for rice, the basic food of plantation workers, is by far the most important item and the most inflated.¹⁴

The steady rise in the cost of producing tea in India, Pakistan, and Ceylon, during recent years, gave rise to concern lest selling prices be forced up to the point where consumption would be curtailed. Labor and materials expenses are not the only items affected; the heavy tax burden imposed upon producers in the form of export and excise duties, in addition to heavy taxes on profits, has greatly altered the cost structure of the industry in the main producing countries (see Appendix A).

Under the International Regulation Scheme excessive expansion in productive capacity, by new planting, was for many years effectively prevented within countries adhering to the Agreement; and such restrictions are still operative in the principal black-tea producing areas. Production and potential offerings of nonadhering countries (mostly green-tea) are an unknown and uncertain factor in the world tea situation. Of greater near-term influence are possible developments in such areas as British East Africa, which withdrew from the International Tea Agreement in 1947 and is no longer bound by restrictions on new planting. Because of high and still rising production costs, especially in Ceylon but also in India, a number of old and well-established companies have been seeking expansion opportunities in East Africa.

¹⁴ The accounts of tea companies in recent years have carried entries such as "loss on rice," since rice is retailed to laborers at a fixed basic price but has been purchased at a much higher cost. In 1948 the loss for representative companies on rice purchases was said to be 25 to 35 percent.

Postwar changes in the governments of India, Pakistan, and Ceylon created an entirely new situation for the tea industries of those countries. Self-imposed regulations, levies, and the like, became no longer a matter of agreement among the producers providing the necessary backing or funds. Inexperienced governments injected their influence, and attempted to dictate policies in the interests of national aspirations. Growers felt their freedom curtailed, and questioned the wisdom of government intervention, especially when the funds for promoting the industry's welfare were still largely supplied by the industry.

Under such circumstances it was not surprising that there developed what was described as a "pilgrimage" to East Africa, where costs were lower, yields higher, and opportunities for profit inviting.¹⁵ The potentialities of this region, however, are not fully known, and some observers minimize the importance of recent developments. They see little opportunity for expansion in Nyasaland, already the largest tea-growing territory in British Africa, and the likelihood of not more than another 10,000 planted acres in Kenya, Uganda, and Tanganyika within the next few years (pp. 245-46).

As the gap between world tea supplies and demand gradually narrowed, and the possibility of an unexpectedly sudden change in the market outlook was kept always in mind, tea producers had time to reflect on their own weaknesses. This in itself was rather refreshing, especially during years of a sellers' market. The continued heavy dependence upon a single market in the United Kingdom, comparable to coffee growers' dependence on the United States market, was apparently viewed as weakness rather than strength, understandable perhaps because the political relationships are so different. Admitting that, under the pressure of all-out production, coarse plucking had been resorted to and quality had deteriorated, growers (or at least their leaders and spokesmen) recognized the need for a return to finer plucking and the elimination of inferior teas.

Coarse plucking of tea during the war was excusable in an attempt to fill the void left by the loss of Indonesian supplies. The habits established by pluckers over a period of years, however, will not be easily changed. During the war and postwar period of shortage, emphasis was on volume of output rather than quality. Even the

¹⁵ De Zoete and Gorton (compilers), *Tea Producing Companies, 1947* (London), p. vii. In the 1948 edition of the same manual the comment is made: "In both India and Ceylon any expansion of the industry which might have taken place is being transferred to East Africa, where taxation is more reasonable and enterprise allowed a freer hand and encouraged to flourish."

contracts with the British government tended to place a premium on quantity and gave inadequate rewards for quality of output (p. 239). A return to finer plucking, as the sellers' market ends, should make the transition easier and reduce buyers' complaints about the quality of offerings available from many sources during recent years.

Some of the problems confronting the world tea economy, and some of the more important factors shaping future developments, are considered in subsequent chapters. As background for an understanding of the forces at work, the nonexpert reader will want to know something more about tea culture, manufacturing, and marketing. The tea producer or trader will probably find the following brief chapter dispensable, yet the significance to be attached to certain changes that have occurred, or are occurring, may hold considerable interest.

TEA CULTURE, MANUFACTURE, AND MARKETING

Tea, more than either coffee or cocoa, has its roots in antiquity. It is therefore not surprising that its culture and preparation are more highly advanced. Nevertheless a product steeped in history and tradition is not immune to further progress. Changes may be slower and less spectacular because so much has already been accomplished. Yet the modern tea industry and trade are undergoing an evolution notably significant in many respects. Some of the changes in process are barely started; others are well advanced.

It is certainly true that, as a result of the war, the problem of international regulation has been complicated, marketing is no longer strictly in the hands of private traders, and production in several areas is handicapped by postwar political changes. In techniques of cultivation, changes thus far have not been revolutionary; in manufacture, they are potential rather than actual at the moment; but if the pressure of high production costs continues, as seems likely, innovations may be more radical than the conservative tea industry has contemplated in recent years.

Methods of tea culture continue to vary widely from country to country and within the important tea-growing regions of the world. Within the commercial tea industry and its Western markets, however, methods of cultivation, manufacture, and sale tend to be broadly similar. Tea growing in China and Japan is still primarily a village enterprise, as it has been for many centuries, whereas in India, Pakistan, Ceylon, and Indonesia, it has been an estate industry for many decades. In the green-tea countries, primitive methods of culture are still common; in the black-tea countries, scientific cultivation and processing are now general.

In Japan, however, tea cultivation improved so much in the interwar period that in many ways it became as up-to-date as in India or Java.¹ Although there are no large estates in Japan, the industry and trade, centering around Shizuoka, became highly organized. In

¹ For the most recent discussion of tea in Japan (in English) in all its phases, but especially on cultural aspects, see W. H. Leonard and Raymond Roberts, *Tea in Japan* (Gen. Hq., Supreme Commander for the Allied Powers, Natural Resources Section, Report 125; Tokyo, 1949).

China, likewise, there were signs of growing commercialization—a trend interrupted by the war and postwar internal strife. Despite evidence of increasing commercialization of tea production in these countries, and in some other smaller growing areas, the trend in world tea absorption by Western markets for many years has been away from the green and oolong teas, leaving the commercially produced black teas of the regulated countries to dominate the Western markets.

In order to compete in Western markets, the green-tea countries must either produce comparable black teas or develop a greater demand for other types. If the former course is adopted—which seems most practicable—much further progress will be needed in the development of growing and processing techniques.² And if the green-tea countries ultimately become more important factors in the world tea trade, international regulation will be more difficult. Any future control scheme then will necessarily be on a broader basis than that of the 1930's.

Green, oolong, and black teas result from the manufacturing process employed, especially with regard to fermentation. Green teas are not fermented at all; the leaves are heated to prevent it. Oolongs are partially fermented. In the production of black teas, the leaves are allowed to wither and then to ferment before they are dried. All three types of tea may be processed from leaves plucked from the same bush; but districts, regions, or countries generally specialize in the production of one type.³

² Early in the present century, because green and oolong teas were popular in certain markets (e.g., the United States), both India and Ceylon, fearing greater competition to black teas, took steps to supply green teas themselves. Then India began a propaganda campaign on behalf of black tea, first in Europe and later in other markets. By 1910, the tables seemed to be reversed. Japan began to subsidize the manufacture of black tea in Formosa so as to share in the growing demand for black tea from Western markets. In recent years black-tea countries have concentrated more and more on black tea, while the green-tea countries have gradually increased their output of blacks.

³ Different regions within China, for example, produce black, green, oolong, scented, and compressed (brick) tea. Compressed tea in various forms of brick, tablets, or balls utilizes waste products from the manufacture of leaf teas. Varying proportions of leaves, siftings, dust, stalks, and sometimes adulterants, are compressed under pressure and usually made in the form of a flat cake with indented lines so that squares can be broken off, as with a chocolate bar. In addition to being convenient for overland transport, these bricks are still used as a standard article of barter in parts of central Asia and Tibet. Compressed tea products are generally used for an ordinary infusion when made mostly of siftings and dust; but when made of leaves and stems, as for the Tibet trade, the bricks are boiled with milk, butter, dough, spices, and herbs to make a kind of soup.

For a list of the principal kinds of tea grown in the world, together with their trade values and cup characteristics, see W. H. Ukers, *All About Tea* (New York, 1935), I, 246–67.

THE TEA PLANT AND ITS CULTIVATION

The tea plant, bush, or tree (*Thea sinensis*)⁴ is an evergreen of the Camellia family, which flourishes in warm, rainy regions of the tropics and subtropics; but the concentration of its cultivation in the Orient is explained largely in terms of the availability of a plentiful and cheap supply of labor. Its demands upon the soil are not exacting. It needs water and drainage, some weeding and manuring, and periodic pruning. Although tea is a hardy plant which grows under diverse conditions, the climate considered most favorable is characterized by a small daily range in temperature, generous rain throughout the year (at least 60 to 80 inches annually), and the absence of strong dry winds and freezing temperatures.

Much tea is grown on hillsides throughout the Orient, but in the largest single tea-producing district in the world (Assam), there are vast plains. Tea plants are ordinarily started in nurseries from seed, selection of seed receiving more attention in recent years than formerly.⁵ The seedlings are transplanted after they are 9 to 12 months old, in rows 3 to 5 feet apart. About 3,000 bushes to the acre seems to be fairly common spacing.

Some of the world's finest tea (as well as coffee) is grown at high altitudes (up to 7,000 feet), where extremes of temperature are less marked and growth is slower.⁶ Such teas are usually described as "high grown." Yields tend to be smaller than at lower altitudes but quality tends to be better. Slower growth produces a smaller leaf with less water and more flavor.⁷

⁴ Although long accepted as the name for the tea plant, botanists now prefer *Camellia sinensis* (L).

⁵ The most common method of planting is from selected seed, but vegetative propagation has been receiving more attention in recent years, especially in Japan. In the black-tea countries experiments have established the practicability of vegetative propagation, and authorities look for its gradual adoption in estate practice.

⁶ The finer Ceylon and South India teas are grown at 3,500 to 7,000 feet, while Darjeelings (considered by many the finest of all) are grown at comparable elevations in the lower Himalayas.

⁷ "That the slow growth of the leaf has a considerable bearing on the flavour of the tea is proved by the fact that some of the finest teas in the Darjeeling district are made when green-fly attacks the plant and checks the growth of the leaf, and also that during the autumn, when growth is naturally checked, some fine-flavoured teas are produced throughout Assam and the Dooars. During the rains, when the growth is luxuriant and large quantities of leaf are produced, there is a falling off in quality, due partly to the character of the leaf, and also to the difficulties experienced in the factory in dealing with excessive quantities of wet leaf . . ." W. A. Maclaren (ed.), *Rubber, Tea, and Cacao* ("The Resources of Empire Series," London, 1924), p. 133.

Even in districts producing the best tea, quality may vary not only from year to year but within a season. Some buyers will take only the early, or very late, part of the northern India crop, i.e., before or after the monsoon rains.

Although tea will grow successfully on many types of soils, the quality of the leaf, like that of tobacco, is strongly influenced by soil. Clay soils tend to give a strong scent but poorer flavor to tea. Black organic soils in damp areas tend to produce a leaf giving a sweet taste but a poor aroma. Loose sandy loams usually give a favorable balance of taste and aroma.

Practically all tea soils must be fertilized if the tea plant is to thrive, and manuring in some form is almost universal practice. Older tea areas, such as those in Ceylon where coffee had been grown previously, require more attention than newer areas, such as those in Indonesia and South India where tea was planted originally on virgin soils. During the war, when fertilizers were in short supply, they were missed much more in Ceylon than in South India.

The three ingredients required for the successful cultivation of tea are Nitrogen, Potash and Phosphoric Acid and manuring is carried out to a greater or less extent in the various countries and districts according to the deficiency or otherwise of these plant foods in the soil. Potash and phosphatic manures, although required for the framework and general health of the plant, have little or no effect on its productivity. Nitrogen is the chief factor in maintaining and producing leaf crop and is supplied not only as the main constituent in fertilising mixtures but by the return to the soil of the foliage of nitrogenous trees and shrubs and other leguminous plants freely grown throughout the tea. Nitrogenous trees and plants also fulfill the equally useful purposes of providing shade, binding the soil and providing a rich humus. . . .⁸

Ideas about effective fertilization of tea have undergone considerable change over several decades, and "final answers" are apparently not yet to be had.

The best form of nitrogenous manure was in dispute over a number of years, . . . in the end sulphate of ammonia was considered the most satisfactory. . . . The argument over bulk organic manures *v.* artificial manures goes on as briskly as ever . . . the story of 30 years of experimentation . . . in Assam, . . . ends in putting artificials at a discount . . . as the density of the shade canopy increases the effect of sulphate of ammonia decreases . . . when the canopy is complete, manuring may possibly be omitted. Lightly shaded areas may be manured, and whether such is a paying proposition is a matter for calculation. . . . The sum is not a simple one.⁹

⁸ R. D. Morrison, *Tea: Memorandum Relating to the Tea Industry and Tea Trade of the World* (International Tea Committee, London; Rev. ed., 1945), p. 15.

⁹ C. R. Harler, "Thirty Years of Soil Management in Assam Tea Estates," *Tea & Rubber Mail*, Jan. 20, 1949, pp. 23-25.

If allowed to grow, the tea plant becomes a tree 40 to 50 feet high, but in commercial practice pruning creates a 3- to 4-foot bush with an abundant supply of young tender shoots. These bushes are easily reached by the native field workers (commonly women) who perform the frequent plucking operations required. Pruning, regardless of method employed, is necessary wherever tea is grown in order to maintain consistent production of new leaves.

In northern India, where the climate is too cool and dry in the winter to permit "flushing" (production of new shoots), plucking begins in March or April and continues thereafter each week or so into November or December. Similarly, winters in China, Japan, and Formosa are so cool or cold that the plucking season extends only from spring into the fall. During this time two or three pluckings are made in China and three or four in Japan. In Java, Sumatra, South India, and Ceylon, however, the year-round warm climate permits continuous flushing and more or less continuous plucking as often as every 7-10 days.

Once brought to maturity after four to eight years, according to location,¹⁰ soil, and climatic conditions,¹¹ the tea plant continues to bear for several decades. Its useful life depends upon general care in cultivation, pruning, plucking, and control of pests. On every well-managed estate, systems of manuring, pruning, weeding, resting the plants, and disease and blight control have been carefully evolved.

Although the tea plant is subject to a great variety of pests and blights, most of them have not done important damage. The most serious and widespread pests are the "tea mosquito" (*Helopeltis theivora*) and the red spider (*Tetranychis bioculatis*). Of the 150 or more fungus diseases definitely identified, comparatively few cause much damage.¹² In some tea-growing regions, weather hazards are more serious, e.g., hail storms in northern India.

"Blister blight" (a fungus disease of the tea leaf that thrives on wet weather) retards growth, and consequently reduces yields. It has gained prominence in recent years because of its spreading to South

¹⁰ Hill gardens are slower in coming to maturity than those located on level ground. Sometimes plants on hillsides do not reach full maturity until the tenth or eleventh year, but full bearing is more commonly achieved in the seventh or eighth year.

¹¹ In the forcing climates of the plains in some districts of India, Ceylon, and Java, plants may become productive in 2½-3 years and fully developed within a few years later. Morrison, *op. cit.*, p. 11.

¹² For a general survey of diseases of the tea bush and research being done on them, see T. Eden, "Recent Advances in Tea Research," *World Crops* (London, November 1949), I, 132-35.

India, Ceylon, and Sumatra—all areas where it was previously unknown. The blight has long been present in North India but has apparently never caused material damage there. Its appearance in South India in 1946 was accompanied by heavy damage. Shortly thereafter it was discovered in Ceylon, and in 1949 in Sumatra. Control and preventive measures have been developed that considerably reduce the threat, but these necessarily increase costs and affect the competitive position of infected areas. Drier weather conditions tend to check the spread of the disease; less shading helps by permitting more sun to reach the plants.

Tea growers, like producers of other tropical crops, have in recent years become increasingly aware of the importance of soil maintenance.

The conservation of soil has always been a problem, especially where tea is—as is so frequently the case—grown on steep slopes; and, more especially, where heavy rains are experienced.

(An annual rainfall of 100 to 150 inches is common in tea-growing areas and might almost be taken as a mean. . . .)

In certain districts there is a dry wash instead of, or as well as, wet wash. . . .¹³

Much erosion of tea soils has been accelerated by the common practice of clean weeding. As with coffee, growers are beginning to modify their ideas about clean weeding, once considered essential. "The practice of selective weeding, leaving the more innocuous sorts to bind the soil, is now very largely carried out in India and almost universally in Java."¹⁴ Also, in recent years, weeds, tea prunings, and other green matter have apparently been more commonly mulched into the soil, or used in composting with the purpose of providing humus and a natural supply of nitrogen, so important in leaf production.

The tea estate must have a plentiful supply of cheap but reason-

¹³ Morrison, *op. cit.*, p. 14.

¹⁴ *Ibid.* Most estate managers in South India are firm believers in a cover crop of weeds. "They believe that clean weeding causes soil erosion and that the bit of good the weeds take from the soil is more than compensated for by their holding the soil together." P. C. Irwin, Jr., "Report on South India Tea Industry," *Tea and Coffee Trade Journal*, September 1947, XCIII, 87.

Although in recent years there has been a marked tendency to reduce cultivation to the minimum necessary to control weeds, the pros and cons are still being debated. A Tocklai Experimental Station pathologist, E. Hainsworth, states: "All the figures that we have obtained, both here [Assam] and in Darjeeling, agree with the Ceylon findings, i.e. that clean-weeded tea yields more crop . . . to change . . . would no doubt have a disastrous effect on . . . [Ceylon's] outturn of tea." *Tea & Rubber Mail*, Aug. 11, 1949, p. 324.

ably intelligent labor for cultivating, pruning, and plucking. Although manufacturing is highly mechanized, there has been to date practically no mechanization in the field. Some changes in this situation may be forthcoming in future years (see Chapter 18). Plucking must be performed by hand if selection is to be made carefully. Ordinarily only buds and tender leaves are used.¹⁵ The lower leaves are too coarse and bitter for good "made" tea, although they are used in China in the production of tea bricks.

In Japan, where tea bushes tend to be trimmed like an ornamental plant or hedge, shears have long been employed in harvesting. This practice greatly increases the output per worker but provides less control over quality.¹⁶ It has been frowned upon by British and Dutch planters in the past, but rising labor costs have stimulated a belief that sooner or later plucking must be mechanized.¹⁷

Before the war, 600 pounds of "made" tea to the acre was considered a good average yield, although variations within a range of about 350 to 1,000 pounds were to be expected, depending upon environmental conditions, the supply of labor, and the plucking policy adopted by the grower. During the war and early postwar years of all-out production and coarser plucking, yields averaged considerably higher, but quality was not up to prewar standards.

Fine and coarse plucking.—The fineness or coarseness of plucking depends upon the number of leaves taken and the time the plant is allowed to grow between plucking rounds. Considerable control over yield is permitted by adjustment of plucking operations, but sometimes the subsequent production of new shoots is adversely affected thereby. Very fine plucking lowers the yield and therefore tends to raise the cost of production. "Fine" plucking, which tends to be customary practice under normal conditions, usually means taking only the bud and two ordinary leaves; "medium" plucking involves taking, in addition, the soft portion of the third leaf (the

¹⁵ If the bud was not plucked, the tea plant would grow small, white, rather sweet-smelling flowers, and produce seeds.

¹⁶ According to the Nippon Tea Association, in its promotional booklet *Vitality* (1938), "scissor picking" increases the daily output per worker about ten times, or from 35 pounds for hand picking to 350 pounds with scissors.

¹⁷ C. R. Harler, "The Mechanical Plucking of Tea: Re-assessment of an Old Problem," *Tea & Rubber Mail*, Mar. 3, 1949, p. 71. In Assam plucking necessitates a large labor force for 4-6 months of the year. "The mechanisation of plucking in Assam would involve the greatest revolutionary change which has so far taken place in the industry" (p. 73). Mechanization is feasible but there are numerous obstacles to adoption (discussed in the article cited above and in *ibid.*, May 12, 1949, p. 175). See also correspondence on the same subject, *ibid.*, July 14, 1949, p. 279.

lower end and stalk being discarded); and "coarse" plucking means taking the bud and three or more leaves, including stalk.

Coarse plucking is often resorted to by growers in order to expand their output when tea prices are high. So long as the bushes are properly cared for and liberally manured, no harm is done them and production costs are reduced. The practice of coarse plucking, however, has a very adverse effect upon the quality of the product and therefore is not regarded as a desirable policy to pursue continuously.¹⁸

Fine plucking is usually necessary if output is to be curtailed. It came to be regarded as "normal" during the 1930's under international regulation. It does not necessarily result in improving the quality of "made" teas, but the tendency is in this direction, and appearance is definitely improved. The inclusion of stalk with coarse plucking, for example, causes the manufactured product to turn red and damages its appearance. Old leaves likewise spoil the appearance of the finished product. The best techniques of plucking to be applied under various conditions are apparently still a matter of opinion.

PLANTATION SYSTEM OF PRODUCTION

That portion of world tea production shipped overseas to Western consuming markets is produced very largely on plantations, gardens, or estates.¹⁹ These plantations are located mainly in certain districts of India, Ceylon, Java, and Sumatra (Maps 6 and 7). Although tea is grown throughout the Orient—as far north as Georgia in Transcaucasia (about 42° N.) and as far south as Nyasaland (about 15° S.)—and is cultivated in South and Central America, the tea output of international significance comes from a few South Asiatic areas not widely separated geographically. The plantations and factories in these regions are part of a business primarily concerned with supplying the Western demand for Eastern tea.

Tea lends itself admirably to the plantation system. Not only is it necessary to employ many workers for tending and harvesting, but every estate has a factory for processing which requires more machinery and skilled supervision than is ordinarily involved in the exploitation of tropical products. Coffee, cocoa, rubber, and some other tropical crops must undergo more or less complicated proc-

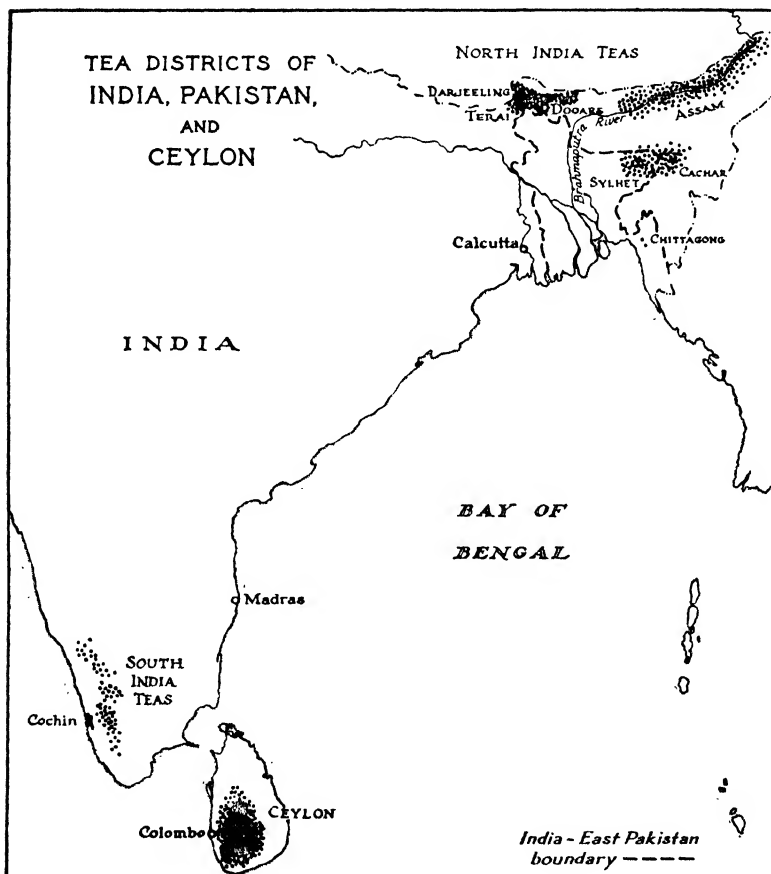
¹⁸ Coarse plucking also introduces certain complications in manufacturing, e.g., in withering. See J. Lamb, "Tea Manufacture in Ceylon," *Tea & Rubber Mail*, Dec. 1, 1949, p. 504.

¹⁹ In North India and Pakistan, plantations are called "gardens" but in South India, Ceylon, and Indonesia they are known as "estates."

essing after arriving in the country of consumption. When black tea reaches its ultimate destination, it has only to be blended and packaged for sale. Factory preparation on the estate is of prime importance in the determination of final quality and must therefore be carried on under expert direction. According to one authority, "fine flavour, 'good vintage,' is quite as much a question of proper care in withering and fermentation as of altitude and climate."²⁰

Tea estates vary in size from 300 to 3,000 acres and larger, with

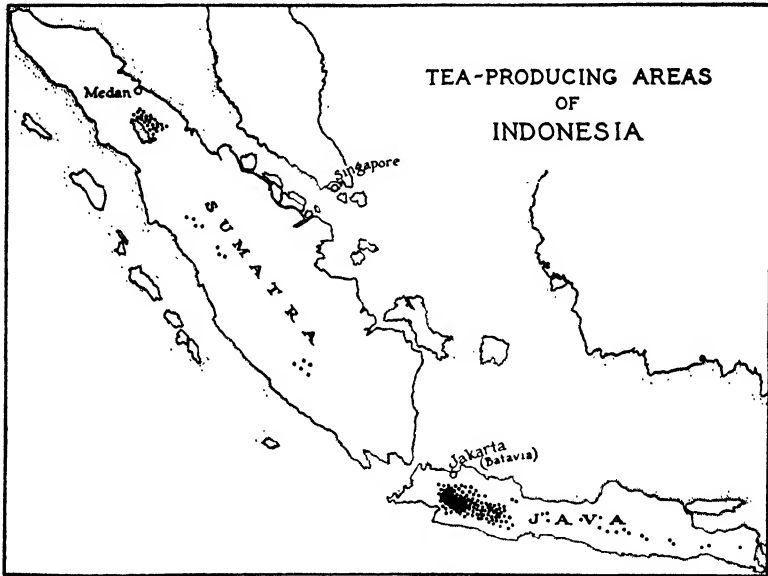
MAP 6



²⁰ R. O. Mennell, "Relation Between Chemical Analyses and Trade Characteristics of Tea," *Tea and Coffee Trade Journal*, June 1941, XXC, 33. But see also discussion of new methods of manufacture in Chapter 18.

about 500 acres generally considered the *minimum* for economical operation.²¹ Factories have tended to increase in size and to manufacture for several estates rather than one only. These tendencies were apparent in India and Ceylon before the war, and since the war something comparable seems to be going on in Indonesia. Japanese destruction of tea factories in Java and Sumatra drastically reduced their numbers, so that in postwar years the few that were able to operate manufactured for other neighboring estates. Some observers

MAP 7



thought it likely that a co-operative system of manufacture would be maintained, "perhaps permanently, so that pre-war individual estate identities may not reappear."²²

Small companies in India and Ceylon operate relatively few estates, and the large ones many. A system of agents acting for the

²¹ The range in size of tea gardens is wide; e.g., in India it was from 71 to 5,799 acres in 1942. In Ceylon the *average* size of plantations is about 206 acres, "but the tendency has been to form groups of estates, which function as units, each with one director and a factory. The area of such a group, however, seldom exceeds 2,500 acres." W. I. Ladejinsky, "Agriculture in Ceylon," *Foreign Agriculture*, January 1944, VIII, 10.

²² Messrs. Gijsselman & Steup, "The Batavia Tea Market in 1947," *Economic Review of Indonesia* (Indonesia, Dept. of Economic Affairs), March 1948, II, 40.

smaller companies makes possible their survival by obviating the necessity for a full complement of managerial personnel.

These "agents" are more properly described as merchant bankers. In many cases the present tea producing companies were established on the initiative of these agents, who had financed the original planters, and they are not only represented on the Boards, but in reality control the companies of which they are nominally the servants. . . .²³

Small-scale native production has not been an important factor in the black-tea industry except in Indonesia and Ceylon. Native output is much smaller than suggested by acreage figures because yields are generally lower than for estates. Unlike the rubber industry, where native output grew to be of considerable importance during the interwar period, especially in the Netherlands Indies and British Malaya, commercial tea production remains predominantly a large-scale enterprise. Quality "is very largely under control, not only during cultivation but still more in the subsequent treatment of the leaf in the factory."²⁴ Rubber trees may be neglected or overtapped, but the latex produced is still a raw material that varies little in quality from one tree or estate to another.

Manufacturing processes are mechanized to a considerable degree on modern British and Dutch estates, only partly so in Japan, and to a very limited extent in China. In the green-tea countries, of course, the factory is a much less important institution, because the processing involved in the production of unfermented and partially fermented teas is far simpler than in the manufacture of black teas. Partly for this reason, the important producers in the green-tea countries are the smaller farmers rather than the estates.²⁵

MANUFACTURING AND GRADING

Once harvested, nothing can be added to tea leaves to improve their character and strength. Inherent attributes, however, may be

²³ Imperial Economic Committee, *Tea*, p. 24.

²⁴ *Ibid.*, p. 16. Small producers are handicapped more in processing and marketing than in growing. Seldom do they have adequate capital, the technical skills and facilities for proper manufacture, or a sufficient knowledge of markets and marketing.

²⁵ According to estimates of the ITC, about 21.6 percent of aggregate prewar (1934-38) world exports of tea (when the green-tea producers accounted for 17.3 percent of total exports) originated on "small holdings," and the balance on estates. In postwar years (1946-48) the percentage had declined to 7.9 (when green-tea producers accounted for 5.1 percent of total exports). These data imply that before the war small tea producers in *all* other countries, but mostly in Indonesia and Ceylon, were responsible for about 4.3 percent of world tea exports and, after the war, for only about 2.8 percent. The decline was due largely to the war and its aftermath in Indonesia.

lost through carelessness in manufacture. Great attention to detail and skillful control are essential if the intrinsic properties of the leaf are to be preserved and developed. Whereas a moist climate is needed in the growing of tea, dryness is desirable for processing. It is often necessary to resort to artificial means of simulating dry climatic conditions. This places a premium on providing the controls necessary to secure good results.

The traditional method of manufacturing black tea is divided into four stages: withering, rolling, fermentation, and firing.

1. *Withering*: As soon as possible after plucking, the leaves are withered to make them pliable. This process is governed by temperature and humidity conditions, but involves drying for 18 to 24 hours in lofts, preferably the natural way, but otherwise by warm air currents artificially produced. The skill with which withering is carried out has long been thought to have an important bearing on quality. Certain chemical changes are believed to begin immediately, and the process is stopped when the leaves have lost just the right amount of moisture. Some authorities consider these initial changes important; others do not.

2. *Rolling*: The leaves are then rolled or gently twisted in rolling machines, primarily to break open their cells, releasing enzyme-containing juices which spread over their surface, but incidentally to reduce the bulk and improve the appearance of the product. Oxidization and fermentation of some of the tannin begins at once. Tannin gives tea its characteristic astringency and color in the liquor when fermented.²⁶ After rolling, the leaves are put through sieves to sort and loosen them in order to permit even fermentation.

3. *Fermentation*: This is a purely natural process, carrying further the action begun with rolling, but it must be carefully controlled. The flavor of tea that is brought out when the leaves are made into a liquor is developed under the chemical action involved in fermentation. The leaves are spread thinly in a cool, humid place for several hours, until they turn a bright coppery color. Fermentation must always be arrested at just the right time to prevent damage to flavor. This is done by quick drying (firing).

4. *Firing*: The leaves are then heated until they are crisp and black—a process somewhat comparable with the roasting of green coffee. After fermented tea is fired, it has lost three-fourths of its

²⁶ Essential oil provides the flavor and caffeine (theine) the stimulating properties. The caffeine content of tea has little influence upon its market value, except as its presence may add to the thickness of the liquor produced.

weight and all but 3–5 percent of its moisture content. It is then termed “made” tea.

The first two stages in this simplified outline of the manufacture of black tea have been long accepted as necessary, but this is now questioned. Investigations into tea manufacturing conducted at the Tea Research Institute of Ceylon (St. Coombs) during recent years have challenged the traditional methods. It is contended that withering is expensive and inconvenient, that rolling is slow and cumbersome, and that a simplified method of pulping, rapid fermentation and firing, and compression of the resulting product into blocks for shipment would do just as well²⁷ (see further discussion in Chapter 18).

After manufacturing is completed by usual methods, the leaves of the made tea are passed through a series of sieves and are sorted into grades. This is done by means of a sifting machine. From this sorting a number of broken and leaf grades are obtained.

Grades and grading.—The recognized trade descriptions of black tea refer to the size of leaf only and do not relate to quality. The smaller broken grades are: Broken Orange Pekoe, Broken Pekoe, Broken Pekoe Souchong, Fannings, and Dust. The usual leaf grades (left after sifting out the broken grades) are: Orange Pekoe, Pekoe, and Pekoe Souchong.²⁸ The large coarse leaves are usually put through cutting machines to reduce their size to the particular grades desired. Fragments remaining after the grading process are sold as Fannings and Dust.²⁹

Since the trade descriptions above may refer to high-, medium-, or low-grade tea, leaf size alone is obviously a poor guide to quality. The poorer leaf grades of fine tea are usually superior to the choicest leaf grades of common tea.³⁰ Furthermore, the term “broken” has

²⁷ See T. A. Buckley, “The Manufacture of Tea,” *Malayan Agricultural Journal* (Dept. of Agr.), April 1948, XXXI, 123–24, being a digest of reports of the Tea Research Institute’s work in 1944 and 1945. See also later comments by the director of the Tea Research Institute of Ceylon (R. V. Norris) in *Tea & Rubber Mail*, May 12, 1949, p. 171.

²⁸ These purely arbitrary designations, used in the black-tea countries, are derived from a system of nomenclature quite different from that used in China. The tip and first tiny leaf are called Gunpowder in China. The next three leaves, in order of increasing size, are called Young Hyson, Hyson, and Imperial.

²⁹ Some fifteen or so years ago Tea Dust was considered as little better than a residue grade but, with the development of demand in India, this grade now commands a premium over most others on the internal market. J. Thomas & Co., Ltd., *Annual Report: Season 1948–1949, Calcutta Tea Market* (Calcutta, 1949), pp. 4–5.

³⁰ This is illustrated by the maximum prices set by the OPA in the United States during the war. The poorer grades of India, Ceylon, and Netherlands Indies teas

an unfortunate connotation and is misleading to the uninitiated. With tea, broken grades are the smaller leaves and desirable particles that pass through the finer sieves. They tend to yield a darker liquor and to make a stronger brew. With other commodities, rice for example, the broken grades resulting from milling are the less desirable ones.

In all cases, the origin of the tea must be known, as well as the leaf grade, in order to have any basis for judging quality even roughly. The trade uses a technical jargon in discussing teas which is replete with descriptive words that are intelligible only to the initiated.³¹

“Broken” grades of tea are preferred, nowadays, in the United Kingdom because of their superior liquoring qualities, and in the United States because of their suitability for use in tea bags.³² “Fannings” (termed “cut tea” in the United States) were increasingly used during the postwar period. The lighter colored and less strong leaf grades are still popular in Continental Europe and the Orange Pekoes continue to be very popular in South America.

The chests used for packing tea vary in weight from country to country and according to size of leaf contained.³³ Half-chests are often used for small-leaf teas because of their heavier weight in relation to volume. Because tea is highly sensitive to atmosphere and may readily acquire foreign odors which will affect its taste when brewed, wooden packing cases are lined with metal foil and sealed as tightly as possible.³⁴ The usual type of chest for export shipment is made of three-ply veneer, lined with aluminum foil, measures about 24" x 19" x 19", with a capacity of roughly five cubic feet.³⁵

classed as “fine” had price ceilings established that ranged between 50 and 57¼ cents a pound (ex-dock New York), whereas the range for the best grades of “common” tea from the same countries was 41¼ to 47¼ cents a pound.

³¹ Sample of a broker’s report describing certain low-standard teas which appeared on the Calcutta market in 1948: “. . . of extremely poor appearance—little or no make but with an abundance of stalk and fibre—combined with liquors which in many cases were dull and flat or sour or burnt.” Another brokerage house report, reviewing the same market but referring to teas from various districts, speaks of “really tippy parcels” coming under the hammer, cup quality approaching the “rains level,” and “leafy sorts” being a strong feature of the market.

³² A standard chest takes about 125 pounds of broken tea, but only 90–110 pounds of tea in leaf form. Under wartime control of the tea trade, a theoretical saving of approximately 20 percent in transport tonnage could be realized by shipping broken rather than leaf grades.

³³ Variations from estate to estate and season to season are also notable. Smaller chests are used for Fannings and Dust since much over 150 pounds creates a danger of breakage in handling.

³⁴ Even with this precaution, tea is sometimes affected, for example, if stowed too close to crates of fruit such as oranges.

³⁵ Because of the feathery nature of the teas produced by the new methods of manufacture mentioned above, some adjustment in shipping chests, packages at retail,

Proper packing is essential to the preservation of whatever qualities careful growing and manufacturing have imparted to the tea ready for overseas shipment. This was emphasized in the late 1940's when good tea chests were not in plentiful supply in some areas. Before the war good-quality chests were generally imported into the producing countries, but after the war in order to protect the recently started indigenous industries, local governments discouraged such imports, thereby creating an important problem for shippers.

WIDE RANGE IN PRODUCTION COSTS

With such an extreme range of types, qualities, and grades of tea, depending upon origin, cultural environment, season of plucking, and method of processing, it is not surprising that the range in costs of production is wide. In the late 1930's producers in South India, Ceylon, Java, and Sumatra were thought to have *average* costs ranging from 8*d.* to 10*d.* a pound, while the quality producers of North India (in such regions as Assam), and the higher gardens of Ceylon, had costs ranging from 10*d.* to 14*d.* a pound. Under prewar conditions a low-quality producer of North India might have costs of 6*d.* a pound and make a profit with a price of 10*d.*, but a price of 12*d.* or more might not have covered the costs of the grower of fine-quality tea.

In the past decade of general inflation tea production costs have risen phenomenally, chiefly because of the increased expenses of labor, until at the close of the 1940's they were two or three times higher than prewar. Despite higher yields with coarser plucking, unit costs have risen steadily. The results of individual companies, however, have been mixed, as is suggested by the statistical tabulation in connection with Appendix A ("Note on Production Costs"). This is explained largely by variations in postwar conditions from one area to another, the market for the type and quality of tea produced, and the impact of government legislation and taxes.

Recognition was first given to rising production costs in 1940, when the British government allowed a bonus of 1*d.* per pound to Indian growers and one of 1¾*d.* to those of Ceylon in setting contract prices. By the close of the 1940 decade the Ministry of Food was still making bulk purchases of tea, but at 18*d.* to 23*d.* (Northeast India and Darjeeling) per pound *above* the basic (prewar) contract levels.

and packaging machinery would probably be necessary, inasmuch as these teas reduce the capacity of a standard chest by about 10 percent.

The increased bonuses established in the early days of the war ($2\frac{1}{2}d.$ to $4d.$ in 1942) were considered "generous," and were undoubtedly established as an extra incentive to expand production after the Netherlands Indies fell into Japanese hands. After the war, however, as shortage continued and costs increased still further, discontent arose in tea circles over the contract prices proposed by government buying authorities (pp. 236 ff.).

Since labor cost is the principal item of expense in producing a crop (around 60 percent), over-all costs are greatly influenced by the availability and character of the labor supply. Despite the density of population in most tea-growing areas, the recruiting of a labor supply has long been a problem common to many plantations. This has been especially true in northern India, with the exception of the Darjeeling district. Ceylon imports the greater part of its labor supply for tea estates from southern India, where there is a surplus; and Sumatra has been obliged to draw upon Java. The native generally has his own land to work, and is not interested in estate employment except at times when his own crops have failed.

War developments early created a relative scarcity of labor in parts of both India and Ceylon and also caused an inflation in food prices. The labor requirements of tea estates were increased, and greater competition for labor tended to raise wages. The chief item of expenditure for the laborer on estates is for food (mostly rice), and food prices rose rapidly, partly as the result of the loss of Burma as a supplementary source of supply for rice. Ceylon was especially hard hit because of its heavy dependence upon rice imports. Higher wages and greater costs of feeding estate labor drove production costs to much higher levels than had prevailed in prewar years. (Attempts by producers to cope with the postwar cost conditions are considered in Chapter 18.)

MOST TEAS SOLD AS BLENDS

Before tea reaches the ultimate consumer it has usually traveled widely, passed through many hands, and has normally been subject to a great amount of competitive bidding. Since tea is a product that must be seen, sampled, and tested if it is to be bought intelligently, the auction method of sale is most popular. Auction markets are provided in the principal producing countries and normally in London (by far the most important) and Amsterdam. Since the war, and (until 1951) while the London market remained closed, the Calcutta

and Colombo auctions assumed greater importance. Tea is also purchased direct from factories and shipped direct to overseas buyers. The method of disposal by producers depends upon varied market factors.³⁶

However chests of tea reach the overseas buyer, from whatever sources and intermediaries, from his standpoint he has acquired merely so many raw materials from which another marketable commodity may be made. The simple factory operations involved in blending and packaging tea in consuming countries do not reveal the complexity or importance of the various steps that have preceded this physical handling.

Until about the turn of the century teas were not commonly blended, packaged, and branded, but were sold unmixed just as they came from the tea gardens of the producing countries. Few straight teas make a good brew. There are thousands of teas that are uninteresting in themselves, but a good product can be made from such teas with the addition of only about 2 percent of fine quality Darjeeling or Ceylon. This is the art of tea blending.³⁷

Nowadays, tea sold at retail is usually a blended product. Blending may not only improve the quality but facilitate adaptation to local water supplies. In the United Kingdom and British countries generally, and to a much less extent in the United States, teas are blended with due consideration for the degree of softness or hardness of the water in the localities where they are to be sold and consumed. Since brewed tea is merely an infusion of tea leaves in boiling water, quite different flavor results are obtained from waters of different chemical

³⁶ Principal ports for the shipment of tea overseas are: Calcutta (North India); Colombo (Ceylon); Jakarta (Java); and Medan (Sumatra). Other tea shipping ports are: Chittagong (East Pakistan); Cochin (South India); Shanghai, Foochow, Amoy, Canton (China); Keelung (Formosa); and Shimizu (Japan). In the green-tea countries, marketing is far less advanced than in the black-tea countries, and no auction markets exist.

³⁷ See F. E. Denison, "The Fine Art of Tea Blending," Supplement to Tea Information Service, *International Bulletin*, April 1949. This recognized authority on blending explains: "Though many teas have attributes in common, each producing area provides characteristics that others lack, each complementing the others as though intended by nature. And each tea estate differs in degree from all others, while with the varying conditions prevailing throughout the year, the dry and rainy seasons, there is ever-changing quality and almost infinite variety . . . there is one best way of procedure and a thousand and one wrong ways. . . ." His general characterization of India and Ceylon teas: "Although the mountain grown Ceylons are invaluable for fineness of flavor and quality and Ceylon teas excel in sweetness, they lack somewhat in intensity; the finer South Indias from Travancore and the Nilgiris will usually show this intensity along with flavor equally fine, while Assams not only possess this intensity, but in many instances thickness of substance, exceptional strength of body, as well."

composition. This is particularly true of the more delicately flavored teas. In general, the harder the water, the more pungent the teas needed in the blend in order to produce a flavorful brew.

The main purpose of tea blending, however, is to meet consumer demand for a uniform product at a stable price. This is accomplished by the skill of expert tea tasters in altering the proportion of "common" teas or "fillers" in the blend, as prices of teas that provide the flavor in the brew rise and fall. Blenders' demands for different qualities, especially of black teas, are highly responsive to changes in their price relationships. Up to a certain point, a rise in tea prices may not be reflected in retail prices if the proportion of the more expensive flavor teas is decreased and the proportion of less expensive fillers is increased. "Provided that the blender does not over-do it to the extent of reducing too much the proportions of those teas which give flavour and quality to the blend, the change is not noticeable to the consumer. . . ."³⁸

Flexibility is provided when the blender uses several teas in the blend. "As few as two kinds of tea may be used in a blend, or as many as twenty. As a rule it is considered better policy to use a goodly number, so that one or more of the concomitants may be omitted or replaced without the change being noticeable."³⁹ Furthermore, combinations of teas from different sources seem to have an appeal to the consumer that straight unblended teas do not possess. Thus a combination of India tea mixed with Ceylon sells better than the same teas do individually.

Tea blending, therefore, is a convenience to the merchant as well as a benefit to the consumer. Before teas were commonly blended, merchants found themselves competing with each other for the same teas, and it was difficult to achieve much uniformity in quality or stability in retail price. Now, once the tea blender has selected the teas which, in combination, provide the character and all-round drinking quality of the blend he wishes to promote, he adds some fine teas to point up the flavor and then proceeds to find out how much harmless filler he can add to reduce his cost and to simplify procurement problems.

Tea blending, in other words, serves a somewhat different purpose from blending as practiced with coffee, whiskey, or tobacco for cigarettes. The bulk or price coffees of Brazil, for example, have long constituted the base for blends widely sold in the United States. All

³⁸ Imperial Economic Committee, *Tea*, p. 28.

³⁹ Ukers, *All About Tea*, II, 60.

these coffees possess strong flavor characteristics and attributes in their own right which may, however, be improved by blending with milder Central and South American coffees of somewhat different characteristics. With tea, the base or filler may not contribute to quality in any way, but will do the product no harm if the types used are fresh.⁴⁰

⁴⁰ Imperial Economic Committee, *Tea*, p. 28.

CHAPTER 9

EFFECTS OF REGULATION ON PRODUCTION AND EXPORTS

Tea acreage, production, exports, and consumption have all been influenced by international regulation of the industry since 1933, and by wartime developments. The tea economy of the world today thus reflects these two highly significant forces. They cannot readily be separated, but in this chapter attention will be given chiefly to the impact of peacetime controls on tea. In the following chapter, the main emphasis will be on wartime controls. Postwar developments, and residual effects of both types of influences on the industry and trade, will be considered in Chapter 11.

International regulation of the commercial tea industry was an outgrowth of the world depression of the early 1930's. It was inspired by the same circumstances that led to restriction and control schemes for other commodities of international importance. Experience of the tea industry under control, however, was quite different from that of most others. Among the numerous international commodity controls, the tea scheme stands out as quite successful in accomplishing its objectives without seriously jeopardizing the interests of consumers. Nevertheless, the very fact of its existence in the immediate prewar period helps to explain the world tea situation not only then but now.

BACKGROUND OF TEA REGULATION

Prior to the International Tea Agreement of 1933, the industry had faced similar problems of disturbed market conditions, but adjustments in supply-demand relationships had been effected with very little intervention. After World War I and the British wartime control of the tea trade during 1917-19, proposals for international co-operation were advanced upon several occasions, but only two attempts at restriction of output were actually made—in 1920-21 and in 1930. Both were voluntary, both ineffective, and soon broke down for reasons now mainly of historical interest.¹

¹ For an account of these early restriction schemes and developments in the tea world during the 1920's, see V. D. Wickizer, *Tea Under International Regulation* (Food Research Institute, Stanford University, 1944), chap. v.

As with coffee, optimism and high prices in the 1920's led to more extensive new plantings of tea than was generally realized. Signs of trouble appeared in 1927, earlier than for many world commodities, as production increased faster than consumption, stocks began to accumulate, and prices started a decline that was to continue for the next five years. Statistical data pertinent to the world tea situation were not very good or complete at this time. Not until several years later was the extent of new planting and the maladjustment between output and absorption at the high price level of the mid-1920's fully realized. The onset of world-wide depression in the early 1930's merely accentuated the need for corrective action. Chart 7 continues the story of some of the more significant developments in the world tea situation during that decade.

Long periods either of high prices or of unremunerative price levels have commonly led to increasing the world supply of tea. In the one case, prosperity leads to overextension of planting; in the other, producers attempt to compensate for unfavorable prices by increasing output. Larger crops permit the spread of overhead expenses over more units, thus reducing costs per pound. Within a short span of years the tea industry experienced both sets of conditions, and the effect was to place a larger volume of tea on the world's markets than could be readily absorbed.

Particularly disturbing throughout the early depression years was the composition of the tea stocks that accumulated. The inventory consisted mostly of low-grade teas in which low-grade Indias, Javas, and Sumatras predominated. Such teas not only begin to lose flavor within a few months² and are difficult to sell on a declining market, but they tend to lower the prices of practically all teas of better quality. The industry and trade became increasingly depressed under the confused, uncertain, and fiercely competitive conditions that prevailed at the time.

Dutch tea interests, heretofore reluctant to co-operate in any form of international commodity arrangement, finally took the initiative in seeking an understanding with the British.³ The plan proposed,

² Many Java teas begin to lose flavor after three or four months, and many Indian teas after seven to nine months in storage. Imperial Economic Committee, *Tea*, p. 43.

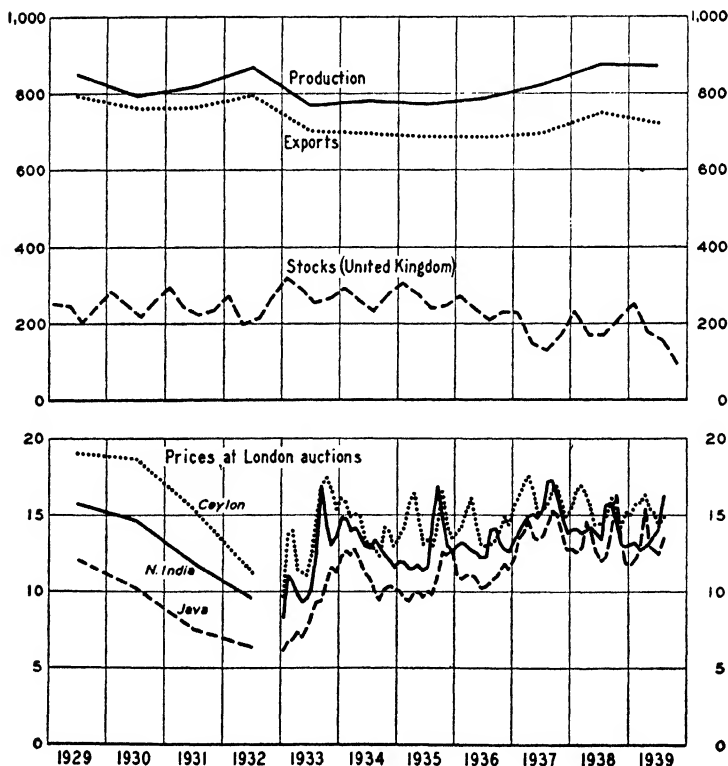
³ During the early years of the world depression, the position of Empire teas in British markets was considerably strengthened by two protective measures: sterling devaluation in September 1931, and restoration of duty preference (abolished in 1929) in April 1932. Dutch teas were finding fewer buyers, and the economy of the Netherlands Indies was suffering severely from a similar lack of demand for most of her important agricultural exports.

and soon approved by most producers in 1933, became a binding agreement to restrict new plantings, establish export quotas, and automatically curtail output, at least in so far as world export markets were concerned. This was three years after an abortive attempt in 1930 to accomplish the same ends on a voluntary basis.

Although regulation was agreed upon for a period of five years, British and Dutch sponsors of the scheme apparently did not visualize it as a permanent undertaking. Five years was thought to be ample time for the necessary correctives. The new factor in the situation, however, was the combination of depression in the tea industry with depression in the world generally. The severity of the world depres-

CHART 7.—DEVELOPMENTS IN THE WORLD TEA SITUATION
DURING THE 1930's*

(Million pounds; pence per pound)



* Adapted from Charts 4 and 5 in *Tea Under International Regulation*.

sion made recovery under regulation more than a matter of a few years. In the process of readjustment under control, many producers came to look upon regulation more favorably than they had at the outset.

THE INTERNATIONAL TEA AGREEMENT

Operation of the Tea Regulation Scheme of 1933 was undisturbed by war and wartime controls for only six and one-half years. Yet the first few years of experience with the International Tea Agreement led to its renewal for another five years. Upon expiration of the second period of regulation in 1943, it was extended for the duration of the war and two quota years thereafter. Clearly the parties to the scheme, the British and Dutch tea interests in India, Ceylon, and the Netherlands Indies, and their respective governments (which gave essential support without being formal signatories to any intergovernmental agreement), considered the results sufficiently satisfactory to justify continuation of the control.

Like the earlier, unsuccessful restriction schemes, the 1933 Agreement was voluntary in the sense that it was signed by associations controlling the bulk of commercial production of black teas, which at this time were responsible for about 85 percent of world tea exports and 97 percent of black-tea exports. Beyond this it differed from the earlier schemes in important respects. It was no longer a temporary expedient, although it may have been so considered at the outset. It was made binding with government backing in the form of compulsory legislation. Exports rather than production were to be regulated, and no distinctions were made as to quality in the setting of export quotas.⁴

The maximum volume of exports in any of the three years 1929–31 was taken as the basis or “standard” of reference in the establishment of quotas.⁵ Quotas were to be fixed, as a certain percentage of these standard exports, by an International Tea Committee (ITC)

⁴ Export licenses were transferable and, inasmuch as they were generally allotted to producers in relation to the volume of their production in the base year and without regard to quality, the scheme had in this respect considerable flexibility. By acquiring or disposing of rights to export, a producer could adjust his operations more advantageously for efficient production.

⁵ The standards set for the first period of regulation (1933–38) were as follows:

Producing country	Standard year	Standard exports (lbs.)
India	1929	382,594,779
Ceylon	1929	251,522,617
Netherlands Indies	1931	173,597,000

made up of representatives of the tea growers, appointed from each country.⁶ The governments of India, Ceylon, and the Netherlands Indies undertook to prohibit exports from their respective countries in excess of the quotas set.

In establishing quotas, the Committee was to take into consideration stocks and prices. It was also given discretionary powers to fix and adjust quotas when necessary during the year for which they had previously been set. Various modifications in the administration of the control scheme were made as experience or necessity dictated.⁷

When the territories of Nyasaland, Kenya, Uganda, and Tanganyika were brought into the scheme in 1934, standard exports were not established according to maximum exports during one of the base years, but were estimates of prospective production of the territories involved, after a deduction for internal consumption. Consequently, the standard exports for British East Africa differed from year to year. They allowed for a substantial expansion in shipments between the quota years 1938-39 and 1942-43 (Table 6)—a rate of increase which was not attained.

TABLE 6.—“STANDARD EXPORTS” OF BRITISH TERRITORIES PARTICIPATING IN THE INTERNATIONAL TEA AGREEMENT DURING THE SECOND PERIOD OF REGULATION, 1938-43*

(Pounds)

Territory	1938/39	1939/40	1940/41	1941/42	1942/43
Nyasaland ..	13,062,500	14,250,000	15,031,250	16,187,500	17,109,375
Kenya	11,501,069	12,128,187	12,505,014	13,072,788	13,146,424
Uganda	581,944	706,617	904,703	1,069,029	1,231,745
Tanganyika..	669,655	836,238	1,104,080	1,543,964	2,109,974
Total	25,815,168	27,921,042	29,545,047	31,873,281	33,597,518

* From *Report of the International Tea Committee, 1st April 1938 to 31st March 1939*, p. 18. Deductions for internal consumption were made at the following rates: 5 percent in 1938/39 and 1939/40; 7½ percent in 1940/41 and 1941/42; and 8¾ percent in 1942/43. Exports from Nyasaland to the Rhodesias and exports within the Customs Union of Kenya, Uganda, and Tanganyika were not debited to the quotas.

⁶ On the Committee, India had 38 votes, Ceylon 25, and the Netherlands Indies 17—i.e., in proportion to standard exports. Unanimous vote of the Committee was required on all important matters.

⁷ The position of India was somewhat different from that of Ceylon and the Netherlands Indies, in that Indian consumption was large and expanding. At first it was not considered necessary to control Indian exports by land, but their rapid growth after the Agreement became effective resulted in extending controls to include such exports in September 1935. Another adjustment in the standard export figure for India was made upon the separation of Burma in 1937.

Including standard exports as originally fixed for the three chief producers (except for India, which was raised by 648,137 pounds for reasons explained below), the grand total for all participants in the International Tea Agreement during the second period of regulation was as follows:

Quota year	Pounds
1938/39	834,243,096
1939/40	836,348,970
1940/41	837,972,975
1941/42	840,301,209
1942/43	842,025,446

“Apart from the utilization of the portion of the quota not exported during the preceding regulation year, the exports from each country, during any year of regulation, may not exceed the quotas determined by the application of the percentage of regulation to the respective Standard Exports.”

Except for exports by land from India to Iran, which were not brought under control until 1935, there seems to have been no great difficulty in keeping overseas shipments within the established quotas.⁸ Table 7 sets forth a comparison between actual and permissible exports from India, Ceylon, and the Netherlands Indies for the regulation years 1933/34 through 1940/41. Nor were serious difficulties encountered in the operation of the scheme within the producing countries. Exports were controlled by a licensing system, each planter's quota being determined by past production, with certain allowances for immature areas. The basic production quota was calculated differently in each country⁹ but flexibility was provided by making the individual quotas transferable.

A salient feature of the 1933 Agreement was the prohibition of

⁸ The quota for India in 1936/37 was corrected for the overexports by land prior to control, and again in 1937/38 because of the separation of Burma. The standard figure for India thereafter included all exports by sea, including those to Burma (very small), and exports by land to Iran. In 1934/35 exports by land to Iran amounted to 14.5 million pounds, and the standard export by this trade was fixed at 2.75 million pounds, effective Sept. 1, 1935. Exports from Burma were no longer subject to regulation after Mar. 31, 1938.

⁹ In the Netherlands Indies a matter of controversy was the proportion of “native tea” to “estate tea” as a basis for allocation of the exportable quota. “Government intervention was needed, . . . to prevent the native product from being used as a buffer when the demand decreased on the world market and prices fell, and this happened not once but several times. . . . Government protection (fixing the price of the wet leaf) was required to prevent the native business from being made to foot the bill and go to pieces.” J. H. Boeke, *The Structure of Netherlands Indian Economy* (Institute of Pacific Relations, New York, 1942), p. 179.

new planting except in special circumstances where "the existence of a tea estate would otherwise be imperilled." The respective governments agreed not to sell or lease further land for tea or to permit tea growers to use land under other crops. In no case was annual expansion to exceed 0.5 percent of the existing area of tea plantations of each territory, though special arrangements were made for nurseries.¹⁰

TABLE 7. — PERMITTED AND ACTUAL EXPORTS OF TEA FROM INDIA, CEYLON, AND THE NETHERLANDS INDIES, 1933/34 TO 1940/41*

(Million pounds)

Year April-March	India		Ceylon		Netherlands Indies		Total	
	Per- mitted ^a	Actual	Per- mitted ^a	Actual	Per- mitted ^a	Actual	Per- mitted ^a	Actual
1933/34....	325.2	324.3	213.8	197.0	147.6	136.2	685.7	657.5
1934/35....	337.5	340.1	236.9	220.2	163.3	145.2	735.0	705.5
1935/36....	322.1	319.4	224.2	215.9	161.3	146.5	707.6	681.8
1936/37....	314.0	307.2	215.1	206.3	158.0	148.1	687.1	661.6
1937/38....	334.3	330.3	228.4	222.0	161.8	151.9	724.5	704.2
1938/39....	358.4	348.3	239.1	234.8	170.4	159.4	767.9	742.5
1939/40....	374.1	363.1	243.3	227.2	176.0	159.4	793.4	749.8
1940/41....	365.4	356.9	248.8	231.2	177.1	168.0	791.2	756.0

* Data (corrected) from International Tea Committee.

^a Quota plus carry-over minus unissued or canceled export licenses. Other explanatory notes are omitted.

Because of restrictions thus imposed by the Regulation Scheme on plantings in the principal producing countries, the world area under tea showed no significant increase in the immediate prewar period. Since the war it has been impossible to make reliable world estimates, for none are available for a number of important tea-producing countries. It is highly probable, however, that the aggregate area planted to tea in the world is smaller than before the war. Declines were registered in the green-tea countries during and following the war as markets were lost, and much acreage was destroyed in Indonesia during the Japanese occupation.

World area under tea.—Before the war it was believed that around 4 million acres were devoted to tea cultivation in the world as a whole, that aggregate production was in the neighborhood of 2 billion

¹⁰ After the ITC was set up, the export of tea seed and slips was also prohibited. The governments of the parties to the pact were to enforce these regulations, as well as those pertaining to exports.

pounds annually, and that more than 4 million workers were employed in growing, harvesting, and handling.¹¹ Excluding China, the area under tea in 1939 was estimated at 2.3 million acres, and production at 1.07 billion pounds. Nearly half of world production was probably in China, over one-third in India and Ceylon, and the remainder mostly in the Netherlands Indies and the Japanese Empire.

During the war the reported acreage showed little change in India and Ceylon, declined significantly in the Netherlands Indies, Formosa, and Japan, while the relatively small area planted with tea in East Africa increased. Judging by the indicated drop in Chinese tea production, the area under tea probably declined in that country also. Acreage was increasing rapidly in the U.S.S.R. before the war, but no information is available on developments since 1940-41. The goal of a 5-year plan ending in 1950 was about 23,000 acres higher than 1937-39 average acreage.

Except for the Soviet Union, tea-producing countries outside the Agreement were apparently not noticeably expanding the area under tea prior to World War II. There was, however, some tendency for production, and especially exports, to expand in the nonparticipating countries following the 1933 Agreement.

The postwar picture of world tea acreage is thus quite incomplete. Table 8 shows the approximate area devoted to tea in the principal producing countries (except China) in recent years, together with comparisons for earlier periods. It must be borne in mind that the figures for different years are not strictly comparable, apparent increases often being accounted for mainly by more complete and better reporting of existing tea areas.

Indirect restrictions on production.—Even though acreage and new plantings were restricted under the Regulation Scheme, it was obviously necessary to exercise a control over annual output if markets were to be stabilized. This was done indirectly through variable export quotas established for each of the principal black-tea producing countries. If growers wished to produce more tea than could be exported under the quota scheme, they would have to find local markets upon which to sell without affecting the world price of tea. This they did to a considerable extent by cultivating domestic sales at such reduced prices that their practice was often described as a special form of "dumping." Even so, the excess of world production over effective demand could not be entirely taken up in this manner.

¹¹ F. Arcoleo, "International Organisation of the Tea Market," *International Review of Agriculture*, July 1937, XXVIII, 215 E. Figures are rough because of the absence of reliable estimates of acreage and production for China.

TABLE 8.—AREA UNDER TEA IN THE PRINCIPAL PRODUCING COUNTRIES
(EXCLUDING CHINA), 1933-48*

(Thousand acres)

Country	Start of regulation	Prewar 1937-39 average	World War II		Postwar		
	1933		1940-42 average	1943-45 average	1946	1947	1948
India and Pakistan....	841	840	841	841	842	847	847
North India and Pakistan } ...	678	677	678	678	679	{ 607 75	{ 608 74
South India	162	163	163	163	164	164	164
Ceylon	557	555	551	550	553	554	555
Estates	493	493	490	488	490	491	491
Small holdings	64	62	61	62	63	63	64
Indonesia (N.E.I.)	459	518	530 ^a	...	367 ^b	...	...
Estates	344	346	345 ^a	...	...	61 ^c	178 ^c
Natives (Java).....	115	172	185 ^a	...	...	...	...
Taiwan (Formosa)....	109	110	113 ^{ad}	...	88 ^d	97 ^d	99 ^d
Japan	94	98	95	76	60	61	68
U.S.S.R.	82	119	131 ^{ee}	...	...	...	...
British East Africa	30	40	43	46	48	50	52

* Data mainly from International Tea Committee, *Bulletin of Statistics*, June 1950, p. 6. Data are not always comparable, even for the regulated countries. The apparent increase in acreage shown for Indonesia during the 1930's, for example, was in reality the result mainly of a more complete count.

^a Data for 1940 only.

^b Unofficial estimate based on United Nations Devastated Areas Report.

^c Estates in exploitation in Federal Territory only.

^d Area as given by *Plantation Crops* (1950), p. 19.

^e Slightly smaller acreage is given for 1941 ("nearly 50,000 ha.," or less than 124,000 acres) in *Large Soviet Encyclopedia, U.S.S.R. Supplement* (Moscow, 1948), p. 909.

The central idea behind the International Tea Exports Regulation Scheme was that, by controlling the amount of tea reaching overseas markets, exported supplies could be so adjusted to import demand as first to increase prices from depressed levels, and then to keep them stabilized at a level profitable to growers but not so high as to restrict consumption.¹² By following policies of moderation the International Tea Committee was able to substantially accomplish

¹² The course of tea prices and profits under the Agreement, as well as the effects of restriction on price relationships among teas of different quality, are traced and discussed in Wickizer, *op. cit.*, pp. 75-88. See also the author's *Supplementary Comment* . . . on this book, pp. 13-18.

both purposes in its relatively few years of operation before the war.

After government wartime control was instituted and prices were established by government purchase contracts, the ITC lost one of its chief reasons for existence. Likewise, the promotional activities of the International Tea Market Expansion Board had to be discontinued or drastically curtailed because of war conditions, supply and shipping difficulties, or enemy occupation of marketing territories.

WORLD TEA PRODUCTION

Over many decades the commercial tea output of the world expanded until, in the late 1920's, production was outstripping consumption, and measures were taken by the principal producers to restrict the size of crops. The first half of the decade of the 1930's therefore showed no increase in output, as growers in the black-tea countries were adjusting their operations in accordance with the export quotas in effect. Although the second half of the decade, and the period immediately preceding the war, does show an expansion in output, aggregate world exports were nevertheless at a slightly lower level than earlier. Unless growth in local consumption in producing countries was making up the difference, unbalance was again being created.

Since the International Tea Agreement was formulated on the basis of controlling exports rather than production directly, the natural assumption was that with exports controlled there would be no incentive for a country to produce in excess of allowable exports plus domestic consumption requirements. When the Agreement was renewed for the second five years, however, a clause was added to the effect that "if the production of tea in any of the producing countries is greatly in excess of the amount which it is entitled to export plus its requirements for local consumption such country shall without delay take all such steps as it may deem necessary to restrict such excess production."

Despite its incompleteness, a rough measure of changes in the world output of tea in countries other than China is provided by Table 9. Before the war Chinese production was believed to range between 600-1,000 million pounds,¹⁸ but the various estimates available seemed to center around 900 million. In recent years there has been a tendency to accept the low of this range for Chinese pre-

¹⁸ L. B. Bacon and F. C. Schloemer, *World Trade in Agricultural Products* (International Institute of Agriculture, Rome, 1940), p. 355.

TABLE 9.—INDICATED CHANGES IN WORLD TEA PRODUCTION, 1935-49*
(Million pounds)

Major producers (ex-China)	War period			1946	1947	1948	1949
	Average 1935-39	Average 1940-42	Average 1943-45				
India and Pakistan	428	516	532	593	603 ^a	613 ^a	632 ^a
Ceylon	232	268	281	283	299	299	299
Indonesia (N.E.I.)	170	143 ^b	...	...	3 ^c	28 ^c	60 ^c
Japan	114	133	93	47	49	57	62 ^d
Taiwan (Formosa)	25	24	23 ^e	6 ^f	16 ^f	21 ^f	...
British East Africa ^g	20	29	29	30	32	30	29

Other tea-producing countries:

French Indo-China: Semiofficially estimated at 25-35 million pounds in 1942 vs. 25-30 in 1932.

U.S.S.R.: 28 million pounds in 1940. A goal of about 40 million was set for 1950.

Iran: Output for 1947 reported at 11.0 million vs. 1.9 in 1939.

Brazil: Production in 1948 given at 2.1 million vs. only 0.8 million pounds in 1944.

Mozambique: 3.9 million pounds in 1948 vs. 1.1 in 1939.

Malaya: Output of estates was 3.2 million in 1949 vs. 1.3 million in 1939, when production of native small holdings was officially estimated at 240,000 pounds.

ITC World Estimate^h . . 1,689 1,612 1,321 1,333 1,412 1,484 ...

* Data primarily from Appendix Table V and sources cited therein.

^a Pakistan production for 1947, 1948, and 1949 estimated at 41, 44, and 46 million pounds respectively.

^b Estimate included for 1942 may be incomplete.

^c Federal Territory only, but production in Republican Territory probably small.

^d O.F.A.R. estimate.

^e Data for 1943 only.

^f According to *Plantation Crops*, 1950, p. 20.

^g Kenya, Uganda, Tanganyika, and Nyasaland.

^h Including estimates for countries not shown. China arbitrarily approximated at exports plus 600 million pounds (1935-38), exports plus 450 million (1939-41), and exports plus 300 million (1942-48).

war production, and to estimate postwar output from this base.¹⁴ World tea production in prewar years may thus have been nearer 1.7 billion than the 2 billion pounds annually, as estimated by the International Institute of Agriculture. For 1946 and 1947 Chinese tea production was estimated at only 40 and 60 percent, respectively,

¹⁴ According to the ITC the "apparently better-compiled estimates" indicated a figure of about 600 million pounds annually. The Commonwealth Economic Committee in its *Plantation Crops* series also uses this figure.

of the normal pre-1936 output;¹⁵ and for 1948 one estimate placed output at only a little more than 100 million pounds.¹⁶

The one country to show a marked growth in the area devoted to tea during the 1930's, and consequently an increase in output in the latter half of the decade, was Soviet Russia. Although some tea was cultivated in Russia in the last century, by 1905 there were still only about 1,000 acres in production. Since 1926, however, the industry has developed rapidly under state encouragement. The announced goal for the end of the Second Five-Year Plan (1937) was 247,000 acres in tea, but a more recent Five-Year Plan called for a total of 150,000 acres with an annual crop of about 40 million pounds by 1950.¹⁷ Table 8 shows 131,000 acres in 1940, which was greater than the area under tea in Japan or Formosa.

Since the U.S.S.R. is not an exporter of tea and produces even now only part of its consumption requirements, the absence of reliable information on developments in Transcaucasia is not especially vital at the moment. Soviet tea production does not constitute a threat on the supply side, but it may be a factor in demand. The U.S.S.R. has long imported tea, though on a greatly reduced scale since World War I. During World War II imported supplies were obtained through Allied allocations and, in postwar years, the Soviets entered into a series of barter arrangements with India, exchanging wheat for tea. Under a Communist regime in China the U.S.S.R. may increase tea imports from that country, probably at the expense of other suppliers.

The wartime expansion of tea production in India and Ceylon was not accompanied by an increase in acreage as in British East Africa. The greatest decline in tea output during and since the war was, of course, in the Netherlands Indies. But the decline in the production of Japan, from the peak levels of 1939-42, was drastic. During the war about 40 percent of Japan's prewar tea area was diverted to food production, tea output falling from 134.5 to 47 million pounds between 1942 and 1946.

¹⁵ ITC, *Bulletin of Statistics*, June 1950, p. 7.

¹⁶ *Plantation Crops* (1950), p. 20.

¹⁷ Figures in the range of 155-65 million pounds are sometimes reported but these apparently refer to green tea leaves as harvested and not to "made" tea.

Information on tea development in the U.S.S.R. remains sketchy. Reports from various sources indicate that tea plantations are to be "greatly extended," that new and higher-yielding varieties are being introduced, and that more experimental stations are being established in Georgia, the major producing region which was said to have 125,000 acres under tea in 1945.

Little is known about the course of tea production in some of the minor tea-producing countries. A semiofficial estimate for French Indo-China in 1942 placed annual output (mainly native tea consumed locally) at 25–35 million pounds.¹⁸ Among the small producers, Iran (a net-importer of tea, mostly from India) has shown one of the most rapid gains, output in 1947 being 11.0 million pounds as against less than 2 million in 1939, and only a negligible tea production in the early 1930's.¹⁹ Similarly, Mozambique, Malaya, and Brazil have become tea-producing countries of some consequence in fairly recent years.

Before the war the ITC hoped to limit expansion of tea output in nonadhering countries by drawing in as many of the smaller producing areas as possible. However, China and Japan were the only countries whose exports were likely to be increased on a scale sufficient to affect the efficacy of control. Negotiations "with Japan failed entirely but in China the attempt was partially successful as a voluntary restriction of exports by the Tea Guilds was established. Later, of course, the outbreak of war between Japan and China put an end to all hopes of agreement."²⁰ Unsuccessful efforts were also made to bring Formosa, Mozambique, and French Indo-China into the control scheme.

The British East Africa dependencies (Kenya, Uganda, Tanganyika, and Nyasaland) joined the scheme in 1934 on the basis of limiting their combined tea-planted area to 39,340 acres, a figure which represented a 25 percent expansion in existing acreage. New planting was made subject to license, seed imports were regulated, and seed exports prohibited. For the second 5-year period of regulation, 1938–43, the four dependencies agreed to limit further expansion of tea gardens to 8,500 acres, and to control exports, but "on such a generous basis," according to the ITC *Review*, that they found it impossible to fill their quotas.

Southern Rhodesia and British Malaya also undertook to limit acreage expansion, but the former withdrew from the Agreement, as did Burma upon separation from India and after the Indian Tea Con-

¹⁸ *Plantation Crops* (1948), p. 20.

¹⁹ When the Regulation Scheme went into effect in the early 1930's there were only about 3,000 acres under tea in Iran, but in 1949 it was estimated that 27,000 acres were in production and that recent plantings would increase the figure to 31,000 acres by 1950/51. Furthermore, it was expected that if new planting continued at the rate of the late 1940's, imports would no longer be required by 1953/54. Tea Information Service, *International Bulletin*, April 1949.

²⁰ ITC, *Review of the Tea Regulation Scheme, 1933–1943*, p. 6.

trol Act ceased to be applicable. The production of exportable tea from Burma is small, but the potentialities might be "very considerable," given facilities for manufacturing.²¹ Apparently not much attention was paid to Iran and Brazil, where production increased rapidly but was mostly for domestic consumption.

The ITC was aware of the prospect that operations under the Agreement would encourage production and exports in nonadhering countries. Although there was some tendency in this direction, following the adoption of the Agreement in 1933 and the improvement in tea prices, after the first few years of regulation the share of nonparticipating countries in total world trade remained around 17-18 percent.²² As the number of countries subject to regulation was enlarged, and as permissible export quotas were increased, gains in trade by nonparticipants, while always a threat, caused no great alarm.²³

TRENDS IN TEA EXPORTS

As the world trade in tea was approaching an all-time peak volume in the late 1920's, India, Ceylon, and the Netherlands Indies easily dominated, but China was still a competitive factor with exports well over 100 million pounds. Japan exported only about one-fifth as much, and the British African colonies and protectorates had barely begun to export. By 1939 Chinese exports had fallen to 50 million pounds, those of Japan had risen to approximately this level, and African colonies had become a factor in the trade. Exports from British East Africa rose rapidly to approximately the level of those from Formosa at the close of the decade.

For the prewar period as a whole (late 1930's) the black-tea (regulated) producers did about 83 percent of the export business and the green-tea producers the remaining 17 percent. In postwar

²¹ *Ibid.*, p. 7.

²² Combined exports of China, Japan, Formosa, and French Indo-China reached a peak in *relative* importance (at 153.8 million pounds) in the regulation year 1936/37, when they accounted for 18.5 percent of world exports. By 1938/39, however (at 163.4 million pounds), they were the same proportion (17.7 percent) of the total as they were in 1933/34, when they amounted to only 142.0 million pounds.

²³ Because of the threat, however, the adhering countries sought to encourage demand for better grades of tea, especially among native populations long supplied in large part by low-quality domestic production or importations, as from China. Imports of tea into the Netherlands Indies, for example, approached 10 million pounds at the opening of the 1930's, but had dwindled to less than 1 million by 1936, partly as the result of the depression-inspired trade policy of the Netherlands Indies, and partly as the result of a promotion campaign on behalf of domestic tea.

years (1945-49) India (and Pakistan) and Ceylon alone were responsible for 89 percent of aggregate world tea exports, and the green-tea countries did only about 5 percent of the business. British East Africa and Indonesia (third-ranking exporter before the war) accounted for most of the remaining 6 percent.

These and other significant changes in the level of exports, and the relative importance of each of the principal producing countries, from before the war to recent years, are suggested by Table 10. The

TABLE 10.—AVERAGE EXPORTS OF TEA FROM PRINCIPAL PRODUCING COUNTRIES, 1935-49*

Country or colony	Million pounds			Percentage of total		
	Average			1935-39	1940-44	1945-49
	1935-39	1940-44	1945-49			
India (and Pakistan)	332.7	382.8	399.8	38.0	48.5	52.2
Ceylon	221.6	257.9	280.9	25.3	32.6	36.7
Indonesia (N.E.I.) . .	153.2	65.3	16.6	17.5	8.3	2.2
China	79.5	20.7	27.0	9.1	2.6	3.5
Taiwan (Formosa) . .	22.8	13.0		2.6	1.6	
Japan	43.3	21.6	11.0	4.9	2.7	1.4
Nyasaland	8.8	12.2	13.7	1.0	1.6	1.8
Kenya, Uganda, Tanganyika	8.6	12.1	11.4	1.0	1.5	1.5
All others ^a	5.7	4.5	5.6	.6	.6	.7
Total	876.2	790.2	766.0	100.0	100.0	100.0

* Data from Appendix Table VI.

^a French Indo-China, Mozambique, Union of South Africa, Southern Rhodesia, Malaya, and Brazil.

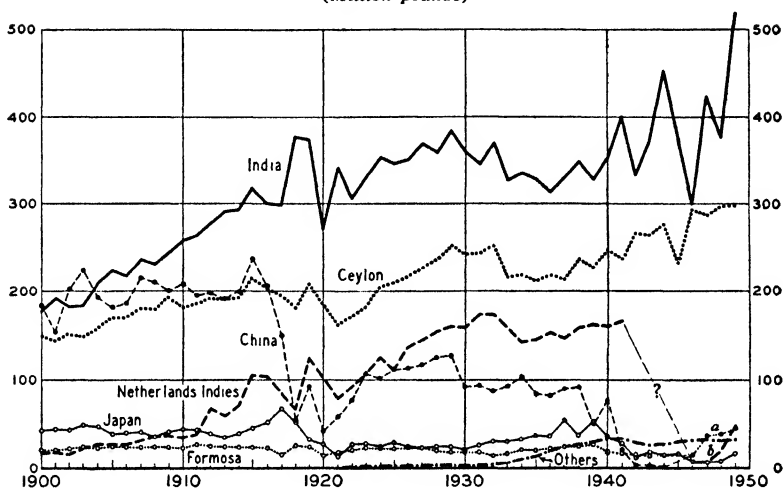
longer-term trend in tea exports of the major shippers is shown graphically by the annual data plotted in Chart 8. Because of the abnormalities of recent years, it is perhaps inadvisable to refer to "trends" except as they are of a fairly long-term nature and easily recognizable from a time span such as that covered by the chart.

Moderate declines in trade (5 to 6 percent) were recorded for the three leading prewar tea-producing countries during the 1930's, while Chinese exports fell off nearly three times as much percentagewise.²⁴

²⁴ Although back once again to the level of 100 million pounds in 1934, following the inauguration of the Regulation Scheme among the black-tea countries, the improvement in Chinese exports was temporary. In following years overseas marketings returned to a level somewhat below that of the early 1930's (around 80 million pounds *vs.* approximately 94).

CHART 8.—EXPORTS OF TEA FROM PRINCIPAL PRODUCING COUNTRIES, 1900-49*

(Million pounds)



* Data from official sources through 1926; from International Tea Committee thereafter (Appendix Table VI). The "Others" curve is chiefly British East Africa, but also includes "Other Africa" and French Indo-China.

^a China and Formosa combined.

^b Incomplete or estimated data for Indonesia since the war.

Exports of the fifth and sixth prewar producers (Japan and Formosa), on the other hand, continued to grow, registering substantial gains of 59 and 30 percent respectively, between the first and second halves of the decade. Of the smaller exporters, the increasing importance of British East African territories was most noteworthy (333 percent gain).²⁵ In the late 1940's while Dutch teas were handicapped, East Africa became the third-ranking supply source, even though combined exports of all the colonial areas were still relatively quite small.

Before the war the Japanese were taking advantage of the situation created by the 1933 Agreement; they imported and installed machinery for making black tea, rapidly modernized their industry, and at the close of the 1930 decade were exporting 7 or 8 million pounds of black tea annually in addition to increased quantities of other kinds. Teas other than green had grown in importance over a

²⁵ Large percentage gains were also recorded for minor tea exporters during the 1930's, e.g., French Indo-China (141), Mozambique (337), Union of South Africa (212). Combined exports of these countries, however, averaged only 1.9 million pounds in 1930-34, increasing to 5.0 million in 1935-39, or only about 0.6 percent of world primary exports.

few years to such an extent that in 1939 they accounted for about 31 percent of all Japanese tea exports.²⁶ These, rather than green tea, provided some competition to the black-tea countries participating in the International Regulation Scheme. Green tea remained the principal type exported from China, although in 1940, out of a total export of 76 million pounds, black-tea exports accounted for nearly 21 million, or about the same as in 1933.

A breakdown of world tea exports by kinds since the 1930's shows the dominating importance of black tea in relation to all others, in percentage of total exports:

Type	1930-34 average	1935-39 average	1940-44 average	1945-48 average
Black tea	87.3	87.6	94.4	96.1
Green tea	7.2	7.9	3.8	3.4
Brick	2.9	1.6	.3	.2
Other kinds	2.6	2.9	1.5	.3

Black tea was gradually gaining ground before the war and this tendency continued thereafter, but the degree of dominance shown in recent years may well be exaggerated, owing to the small representation of green-tea countries in world exports, a situation which may not be permanent.²⁷

The United States market continued to take tea from the green-tea countries long after most markets had more or less completed the shift to black teas. Even so, in the years prior to the outbreak of the war, green tea accounted for only about 15 percent of United States consumption, and oolong for about 5 percent, while 80 percent was black tea. Since the war the United States has again begun to import green and some oolong teas, but on a greatly reduced scale.

After the outbreak of the war in Europe, the principal world tea markets continued to receive supplies from black- and green-tea countries alike. But with the Japanese attack on Pearl Harbor in late 1941, the effective blockade of Chinese ports, and the conquest of French Indo-China and the Netherlands Indies in the following months, the United Nations were cut off from all except British sources of supply. In 1942 a centralized tea-purchasing and allocation scheme was worked out, whereby the British Ministry of Food undertook to buy all surpluses of tea not in Axis hands and to allocate supplies among

²⁶ Prior to 1935, Japanese exports of black and "other" kinds of tea were not reported separately, but in 1929 and 1930 green tea accounted for all except half a million pounds of total exports.

²⁷ Chart 6 (p. 158) shows the longer-term trend in exports from the black- and green-tea countries.

the United Nations. Except for the United States, which received about 65 percent of its normal tea requirements, the other United Nations received 80 percent of theirs under the terms of the original allocation plan.

By the middle of 1943 concern over tea supplies had largely disappeared. The trade in London estimated that the quantity to be contracted for during the 1943/44 season would amount to roughly 730 million pounds, a "comfortable" supply situation under the circumstances; only shipping scarcity would prevent appropriate distribution. The shipping outlook in mid-1943 was encouraging and subsequently improved further.

The principal tea markets outside the Orient were within United Nations countries. As stocks of green tea were used up, green-tea consumption in these markets ceased, since imports had been cut off. Thus green tea lost more ground to black tea as a result of the war. Many green-tea users were forced to change their consumption habits. In some markets, supply circumstances encouraged a shift to black tea; in others, with shorter total supplies, coffee or other beverages gained at the expense of tea.²⁸

Green tea, however, should not be entirely dismissed as a potential market factor. Japanese horticulturists have developed a new tea which, it is said, "puts all other green teas to shame." Government research people "hope to increase acreage by 5 percent to 10 percent a year by new plantings of this variety and some reports claim that within twelve years it will represent over half of Japan's tea acreage."²⁹ So long as the United States assumes some responsibility for the economic rehabilitation of Japan, it seems likely that the tea trade between these two countries will be encouraged.

PRODUCTIVE CAPACITY *vs.* ABSORPTION

World tea production was increasing during the 1930's, but world tea exports were at a slightly lower level in 1935-39 than in 1930-34. Part of the reported production was being absorbed in the countries of production rather than being exported. In 1939, the ITC estimated that consumption in the three principal exporting countries

²⁸ In 1950, when tea rationing was generally a thing of the past except in the United Kingdom, green tea continued to be rationed in several North African countries owing to dependence upon uncertain supply sources, such as China. French and Spanish Morocco are green-tea markets; Algeria is a coffee-consuming country but the native population favors green tea; while Tunisia is now considered a black-tea market, green-tea imports having shown a pronounced decline.

²⁹ *Tea Times* (London), March 1949, p. 8.

had about doubled between 1932 and 1938, standing at around 130 million pounds in the latter year.³⁰ This gain of 65 million pounds in domestic consumption compensated for part of the reduction in absorption by Western markets.³¹

With world tea production (excluding China and the Soviet Union) averaging around a billion pounds annually in the five prewar years 1935–39 and exports averaging around 876 million pounds (including China), it was clear that aggregate output exceeded the absorption capacity of Western markets. Output at this rate implied productive capacity that was even greater — an assumption amply justified as demonstrated during the war by the stepped-up production of India and Ceylon. Regulation of exports continued to be necessary, and surpluses were absorbed (at a price) in the producing countries.

Just what the excess capacity amounted to and what the role of international tea regulation was in adding to or subtracting from it are matters not easily appraised. In the early postwar years, conditions had so changed that these considerations seemed for the time being unimportant. Yet no well-informed tea merchant expected the shortage in world tea supplies to last more than a few years, and many foresaw a return to prewar conditions of excess productive capacity and the need for continued regulation of the tea industry.³²

In 1938 it was thought that the productive capacity of India, Ceylon, and the Netherlands Indies alone exceeded by “some 20 per cent or more” world-consumption requirements at the time.³³ In its special review, published in 1943, the ITC put the grand total of world potential exportable production in 1939 (“if conditions had been normal”) at 1,105 million pounds and consumption in overseas

³⁰ ITC, *Report for 1938–39*, p. 31.

³¹ Much of this tea was, in effect, “dumped” on local markets without profit. As one producer explained: “While prices ruling in the Calcutta market are apparently below the cost of production and involve producers in loss, this outlet actually helps to recoup fixed and standing charges, which would otherwise fall on exported tea.” T. McMorran, quoted in “Expert Views on the Outlook,” *Tea and Coffee Producing Companies, 1934*. The wide, and increasingly large, spread between prices of tea for export and for consumption in India lasted all during the 1930’s, but practically disappeared under the new world supply conditions of 1942 when auctions for export sales were closed. Upon resumption of trading in 1947 the differential was relatively small at the high postwar price level (see Chart 10, p. 236).

³² The ITC in 1946 went on record to the effect that “in the absence of any form of planning, the tea industry will in brief passage of years again be faced, probably abruptly, with an unmanageable surplus. . . .” *Memorandum on the Operations of the International Tea Committee (in relation to Command Paper 6709)* (London, April 1946), p. 20.

³³ James Rubinfeld in *Tea and Coffee Trade Journal*, May 1938, p. 37.

markets at 890 million, and concluded: "The excess productive capacity, on a conservative basis, amounted, therefore, to 215 million lb."³⁴

According to the Committee, the combined potential exportable production of India, Ceylon, and the Netherlands Indies was exactly equal to prewar consumption in importing countries, or 890 million pounds.³⁵ The 215 million pounds of excess capacity exactly equaled the estimated production for export from British East Africa and the nonregulated countries, principally China, Japan, Formosa, and French Indo-China. For various reasons set forth elsewhere,³⁶ these estimates seemed to overstate the case and tended to be misleading.

Clearly, the Committee's conclusion on excess productive capacity, although presented under the title "Estimated Potential Unregulated Supplies and Consumption of Tea Before the War," was based upon an analysis greatly influenced by war developments; and, in some instances, data were used which applied to war and not prewar years. Although the Committee described its estimates as "conservative," they had in fact little reality, as later events were to demonstrate. The potentialities for India and Ceylon were soon exceeded but, in the decade since the estimates were made, exports from all other producing countries as a group have been well below the theoretical potentials.

It seems reasonably certain that with tea acreage stabilized in the chief black-tea countries since 1933, at the close of that decade productive capacity for *black tea* was no longer materially excessive in relation to world demand.³⁷ In its 1949 report, and probably in

³⁴ See ITC, *Review of the Tea Regulation Scheme, 1933-1943*, pp. 17-19.

³⁵ In estimating potential production of these countries, the Committee indicated that until the end of 1941 it was generally believed that the "standard productions flattered the productive capacities of their respective countries," and then presented figures which it stated "would have been more generally accepted." Apparently the reason for revising earlier ideas about productive capacity was the remarkable expansion in output that occurred in India and Ceylon after the beginning of the war. But a combination of favorable weather, coarser plucking, and heavier fertilization was primarily responsible for this result, and few would suggest the wisdom of coarser plucking as a long-term policy. Before the war the largest recent Indian crop was around 450 million pounds, the best Ceylon crop about 255 million, and the largest Netherlands Indies crop a little over 180 million pounds. The ITC estimates, given as what "would have been more generally accepted," were 530 million pounds for India, 282 for Ceylon, and 250 for the Netherlands Indies, making a total of 1,062 million pounds. This figure was 254 million greater than "standard exports," and, after allowing 172 million for domestic consumption (ITC estimates), was 82 million pounds larger than the 100 percent quota.

³⁶ See Wickizer, *op. cit.*, pp. 117-18.

³⁷ About the same amount of time had been required to effect a similar adjust-

view of changed conditions and continuing uncertainties, the ITC seemed not to have been so concerned with the problem of excess productive capacity. Yet, with qualifications, it anticipated a balance between world tea supplies and demand in 1951, "after which an excess of production over potential absorption may be looked for."⁸⁸ It was only on the basis of rather nebulous projections, however, that such a forecast could have been made. It would necessarily have to assume that green-tea producers, such as China, would regain positions in the world market which were lost many years ago.

A private estimate made in 1948, under assumptions that all countries were in full production and trade was returned to normal, indicated a surplus tea output of 93 million pounds. It was not expected that production would reach the estimated figure of 1,331 million pounds "for a number of years" and, inasmuch as "a healthy supply and demand position may show an excess of at least 20,000,000 lb. in production . . ." the world tea position "should be favourable to producers . . . there should be no over-production bogey."⁸⁹

Outside the British sources of supply, there was little if any incentive for producers to expand productive capacity during the war. In fact, with markets gone or drastically shrunken in size, the tendency was in the opposite direction—to neglect tea growing, perhaps to allow gardens to deteriorate or to supplant tea with other crops. The Japanese had no incentive to encourage tea production at home or in occupied or controlled areas, and the condition of estates generally deteriorated. In some places tea bushes were uprooted or otherwise destroyed, and in other places gardens went unplucked and reverted to jungle.

The wartime increase in output of India, Ceylon, and British East Africa, while very substantial, did not fully compensate for the loss of supplies from the Netherlands Indies. Except in Africa, little of this greater output was the result of new planting. Even if crops were to continue to be large because a greater proportion of the total was represented by coarse leaf, the home markets in producing countries

ment early in the century, when, because of overproduction, tea planting in India and Ceylon was stopped in 1900, and not resumed until 1907. The second crisis of overproduction, which occurred in 1920, was corrected more rapidly owing to the combination of voluntary restriction, unfavorable weather in India, and a rapid growth in consumption.

⁸⁸ ITC, *Report for the Period from 1st April 1941 to 31st March 1949* (1949), p. 29.

⁸⁹ Review of the Calcutta broking firm, Carritt, Moran and Co., as reported in *Tea & Rubber Mail*, July 29, 1948, pp. 294-95.

had already demonstrated a capacity to absorb increasingly more tea for native consumption.

The threat from East Africa, appraised earlier as serious, was by 1949 somewhat minimized, as it was argued that suitable tea areas were limited, there was considerable competition for labor, and adequate supplies of tea seed were not readily available. Nevertheless, as production costs rose higher and higher in India and Ceylon, during and after the war, it was expected that a boom might develop in East Africa owing to the lower and more favorable cost structure of the industry there. By 1951 the earlier potentialities were again being appraised seriously, and output was definitely expanding.

Recovery of the tea industry to prewar levels in Indonesia was expected to require several years, and there was no immediate concern over the possibility of excess productive capacity arising.⁴⁰ If there was to be overproduction of tea or excess capacity in the foreseeable future, it seemed that it would have to arise very largely from India, Pakistan, Ceylon, and British East Africa.

Despite the tremendous capacity for tea production in China and Japan that might, under certain conditions, be classed as a potential in so far as world markets were concerned, there seemed small likelihood that these sources would offer significant competition to British and Dutch producers for at least several years.

Concern over *excess productive capacity*, a problem of the prewar tea industry, thus appeared less justified in postwar years, especially in view of the need to raise quality standards by returning to finer plucking and thereby perhaps avoiding *excess production*. (Problems involved in the reorientation of the postwar tea industry are discussed in Chapter 11.)

⁴⁰ "The 'standard export' as fixed before the war by the international tea restriction agreement was 34 percent lower for Indonesia than its actual production capacity and domestic consumption amounted to about 30 percent, so that even with an international 'restriction percentage' of 0 percent, a 'domestic restriction' had to be applied within Indonesia. . . . New installations are being built up from the remains of old factories so that at the end of this long process the capacity of the tea industry will remain much smaller than it was before the war. . . . [Under favorable conditions] . . . the production of estate tea can be estimated at 68,000 tons at the end of the recovery period of say 6 years. Including about 15,000 tons of native tea the total will then be 83,000 tons compared with a productive capacity of 119,000 tons before the war." *Report of the President of the Java Bank* . . . (Batavia, July 9, 1949), pp. 35-36.

CHAPTER 10

BRITISH MANAGEMENT OF THE WARTIME TEA TRADE

Developments of World War II on political, military, and economic fronts largely explain the postwar world tea industry and trade position. A review of the chief events of this period should highlight developments that have proved significant in postwar years, and suggest others whose ultimate impact on tea cannot as yet be fully appraised.

As in 1917–18, the bulk of the world trade in tea came under the direct control of the British government shortly after the outbreak of open hostilities in Europe in September 1939. The International Tea Exports Regulation Scheme was then in its seventh year of operation, with the export quota set at 90 percent. The Agreement continued nominally in effect, although the circumstances of its operation were greatly modified and its regulation and controls were reduced in scope.

In retrospect, the regulated tea industry was fortunate in that its principal markets remained despite the war; also, while short supplies and restrictions on shipping necessitated rationing and allocations, concern over possible adverse effects of forced changes in consumer habits proved largely unwarranted. The industry was also fortunate in that competing sources of supply were to be largely “potential” for some years to come.

MARKET DEVELOPMENTS IN THE WAR YEARS

A few days after war was declared, the British government established ceilings on domestic wholesale and retail tea prices. The London tea market was closed, the Ministry of Food took over existing stocks, and all imports were requisitioned on arrival and exports were controlled. Shortly afterward, the Food Controller undertook to purchase tea from growers at fixed prices.

Tea imports into the United Kingdom were covered by contracts between the Ministry of Food and growers in India and Ceylon. The first contracts for Empire teas were made in September 1939 for the remainder of the calendar year 1939. Later ones were made at aver-

age 1936–38 f.o.b. prices in India and Ceylon plus certain allowances for increased production costs. Taking into account these government purchases and shipping uncertainties, the ITC raised the export quota in October 1939 to 95 percent. Prices in producing countries had started to rise in August, and the rise continued as buyers from other countries bid for tea in an effort also to protect their stocks position.

When the British government became the sole buyer in the most important world tea market, it was apparent that government terms of purchase would largely determine the volume of exports permitted from countries adhering to the International Tea Agreement. There developed, however, a market outside the scope of governmental control and influence, in which prices rose to exaggerated heights, despite efforts of the ITC to meet the situation by successive increases in export quotas. Estates having tea available after the Food Ministry's needs had been met were selling in Calcutta and Colombo to other buyers who, in view of wartime uncertainties, were eager to build up their stocks.

Early in 1940 the Ministry of Food arranged contracts with India and Ceylon producers for the year which would cover about 95 percent of its requirements.¹ The other 5 percent was to come from British East Africa. To cover increased costs, a bonus over average pre-war prices of 1*d.* per pound was paid growers in India and one of 1¼*d.* was paid Ceylon growers.

Upon the invasion of the Low Countries in May 1940 tea prices weakened, especially in the Netherlands Indies, and in July the British government agreed to buy 40 million pounds of Dutch tea (about 23 percent of standard exports) for delivery in 1940 at a price of 7¼*d.* per pound, f.o.b. Batavia.² This price was considerably below that paid for Java teas in recent previous years, but the arrangement provided some protection to Dutch interests.

¹ These amounted to about 80 percent of their standard exports under the International Tea Agreement at a time when the quota was set at 90 percent.

² At the same time, the ITC reduced the export quota to 90 percent, but after a strong price recovery it was increased again to 92½ percent in October. In February 1941 the quota was again lowered to 90 percent, but in May it was re-established at 95 percent, and finally at the end of October it was jumped to 110 percent. By January 1942, before the occupation of Java and Sumatra by the Japanese in March, the export quota had been raised to 125 percent, where it remained throughout the war and postwar period (up to 1950) (Table 11).

It is not always easy to follow the reasoning of the ITC in its frequent adjustment of quotas between September 1939 and March 1942. Doubtless the record reflects the confusion and uncertainties of the time. Appraisals of the outlook necessarily had to be revised frequently. It seems, however, that the buying policies of the British government and price developments in the "out markets" were important among the factors determining the Committee's actions on quotas.

Government tea-purchase contracts were reduced from 565 million pounds in 1940 to 487 million pounds in 1941, but the Dutch share was increased to 48 million pounds and prices paid for Dutch teas were raised to 10*d.* Contracts with India and Ceylon for 1941 were for less tea (410 million pounds) at the same prices as were paid in 1940, while additional purchases were made in British East Africa and some other countries. In the meantime rationing, introduced in July 1940, had reduced home consumption by some 50 million or more pounds annually.

Although threatened at times with reduction, the British tea ration was maintained at 2 ounces per week per adult. The original allotment for children under five years of age was eliminated, and retail tea prices were increased by 4*d.* early in 1943; but even after the shipping and supply situations had improved materially, the ration was not enlarged. Apparently it was the policy of the Ministry of Food to establish rations at levels that could reasonably be expected to hold despite vicissitudes.³ Bonuses were given from time to time, and an additional 1 ounce per week was granted old people in 1944, but it was not until July 1945 that the basic ration was increased to 2½ ounces.⁴

Rationing of tea was necessary in practically all of the principal tea markets of the world, the United States with its low per capita consumption being the notable exception. Whether or not the same necessity existed after the war, it was the policy of most governments to continue tea rationing well into the postwar period.

Extension of Tea Agreement in 1943.—The organizational and administrative framework of the Tea Regulation Scheme was maintained in so far as circumstances permitted. The export quota of 90 percent at the outbreak of the war was successively raised to discourage “the continued rise in prices to an extravagant level” and to encourage the movement of supplies. After the Japanese conquest of the Netherlands Indies early in 1942, the restrictive features of the Agreement ceased to have practical significance. The quota of 125

³ Donald Tyerman (of the London *Economist*) observed in *Barron's* (Jan. 24, 1944, p. 10) that, contrary to German experience after bombing, rations had been and would be honored in Britain. “Even at the worst period of ship sinkings a year ago food rations, too, were kept steady—largely because the mistake was never made of increasing them improvidently when supplies improved temporarily.” This seems to explain why the British tea ration was not increased until July 1945, after V-E Day.

⁴ In the postwar period tea continued to be rationed in the United Kingdom, the basic ration returning again to 2 ounces per week per adult in July 1947, not to be reinstated at 2½ ounces until December 1949. But again in July 1950 it was reduced to 2 ounces when it was finally admitted that the bulk-buying policy had been a failure (p. 241).

percent established in April of that year remained nominally in effect and unchanged until April 1950 when it was raised to 130 percent upon the inauguration of the 1950-55 postwar scheme (Table 11).

TABLE 11.—EXPORT QUOTAS UNDER THE INTERNATIONAL TEA EXPORTS REGULATION SCHEME, 1933-51*

(Percentage of standard exports)

Regulation year (April 1-March 31)	Quota	Revisions announced during year
(1) 1933/34	85	None
(2) 1934/35	87½	None
(3) 1935/36	82½	None
(4) 1936/37	82½	None
(5) 1937/38	87½	Originally fixed at 82½; raised in May
(6) 1938/39	92½	None
(7) 1939/40	95	Originally fixed at 90; raised in October
(8) 1940/41	92½	Originally fixed at 95; lowered to 90 in July; raised in October
(9) 1941/42	110	Originally fixed at 90; raised to 95 in May, to 100 in August, to 110 in October
(10) 1942/43	125	None
(11) 1943/44	125	None
(12) 1944/45	125	None
(13) 1945/46	125	None
(14) 1946/47	125	None
(15) 1947/48	125	None
(16) 1948/49	125	Fixed by Interim Producers' Agreement, 1948-50
(17) 1949/50	125	None
(18) 1950/51	130	Fixed by Agreement of 1950-55

* Revisions in quotas take effect from the beginning of the regulation year (April 1) regardless of when announced. Percentages relate to the regulation year as a whole, not to the portion subsequent to announced changes.

Like the 200 percent quota on coffee (finally established early in 1943 after shipping had become scarce), the 125 percent tea quota was set to insure unrestricted production in the countries remaining accessible to the United Nations, and to facilitate maximum possible exports under the circumstances. Still, the tea quota bore a closer relationship to expectations than the coffee quota did.⁵

⁵ As late as July 1943 it was reported that London tea circles were not sure that 125 percent of standard exports would be necessary to meet all the tea requirements of the United Nations.

When the second five-year period of the International Tea Agreement expired in 1943, another extension was made for the duration plus two full quota years thereafter. When the Agreement was finally terminated at the end of March 1948, it was expected that in time a new form of regulation scheme would be introduced under United Nations' auspices. Meanwhile an Interim Producers' Agreement was to run for a maximum of two years from April 1948. Inasmuch as the prospects for the proposed International Trade Organization were dim in 1950, the tea producers went ahead with a new five-year agreement (Chapter 18).

When the ITC decided to maintain export quotas for 1943/44 at 125 percent of standard exports, it was functioning merely to maintain the administrative machinery of international regulation. Tea supplies were short. The British Ministry of Food, acting on behalf of the United Nations, was buying and allocating all the tea that could be produced in and exported from India, Ceylon, and British East Africa. The quota for the Netherlands Indies had become purely nominal, and tea exports from the black-tea countries that remained actively in the scheme became virtually unrestricted.⁶

CENTRAL BUYING AND ALLOCATION SCHEME

After the Japanese attack upon the United States in December 1941 and the subsequent fall of the Netherlands Indies, the only remaining sources of tea supply were India, Ceylon, and East Africa. It was expected that these areas would be able to furnish about 725 million pounds in 1942. Following establishment of the Combined Food Board, the British Ministry of Food became the "managing agent" for all purchases of tea for the United Nations (and certain neutral countries), and thereby continued to function as before except on a broader scale. All allocations were undertaken in accordance

⁶ Note the accompanying figures on actual exports of the principal producers through 1940/41 and their quotas for 1941/42 through 1943/44 (in million pounds) :

Actual exports					Export quotas				
Season	India	Ceylon	N.I.	Total	Season	India	Ceylon	N.I.	Total
1938/39	349	235	159	743	1941/42	422	277	191	889
1939/40	363	227	159	750	1942/43	479	314	217	1010
1940/41	358	239	168	765	1943/44	479	314	217	1010

At the suggestion of the government of India, regulation was established at 130 percent for 1950/51 (after record exports in 1949) in order to continue a free flow of supplies. For the regulation year 1951/52 the quota was raised to 135 percent to provide for all possible contingencies.

with the recommendations of the Tea Committee of the Combined Food Board, on which there were representatives of the Dominions, the United States, and the Soviet Union. Later (in 1945), the Netherlands joined the Committee.

By this consolidation of purchases it was expected that the continued speculative rise in "out-market" tea prices would be stopped. Prices in the Calcutta free market in mid-1942 were double the average price of the last prewar season. Aside from assuring a fairer distribution of supplies, the pooling agreement was expected, furthermore, to facilitate production planning and shipping arrangements.

Under the central-buying scheme, the Ministry of Food extended its purchasing contracts to cover the entire available exportable surplus of each producing country over and above domestic requirements. Supplies were to be shared equitably among Allied and neutral countries. (Although tea stocks had been built up in the United Kingdom and the United States, tea had become scarce—practically a luxury item—in some markets such as Eire and Australia.) Agreements with the governments of India and Ceylon were announced in September 1942 and were made later with producers in the East African territories. Exports of tea were prohibited from September 1942, except on order of the Ministry.

Prices paid growers continued to be based on average prices of 1936–38, but the allowance for increased costs was raised to 2½*d.* per pound on Indian tea and 4*d.* per pound on Ceylon tea. Although the new arrangement meant little change in so far as the British government was concerned, other members of the United Nations were no longer at the mercy of the speculative "out market."

Under the new plan, worked out after protracted negotiations, the Ministry of Food assumed the responsibility for shipping, which had been a major risk of exporters. In effect, export markets were guaranteed at least until the end of the war. The government bonus to growers was considered generous. Tea shares responded favorably to the announcement, for it was thought that, in general, tea-producing companies would be able to maintain their dividend rates. Most estates had reported sizable profit gains during 1941, largely as the result of the extraordinary prices obtained on their out-market sales through the Calcutta and Colombo auctions.

From 1939 to 1942 contract prices were "based on the thesis that the producer should enjoy the same amount of profit and goodwill under the Ministry contract as he enjoyed in peace-time."⁷ The

⁷ According to the late Henry Jones, Director of Tea of the Ministry of Food.

contracts were more favorable to the government than in later postwar years, being negotiated on a basis about 9*d.* per pound below free-market prices. When the Ministry of Food became the sole buying agency for all tea, it was agreed to eliminate the differential so that all buyers, wherever located, would get tea at the same price. This move was thought to have helped "very considerably" in maintaining tea consumption in the United States by avoiding complaints of discrimination.

Under the central-buying scheme, the Calcutta and Colombo auctions could no longer function for exportable tea, and the tea companies' source of profit on nongovernment sales was largely closed. The consumption quota for India's domestic market, however, was increased from 17 to 22 percent of each estate's crop basis, and tea for internal consumption could still be sold at auction in the only remaining free market at Calcutta, by local sale or by contract. As a result, the highest price level ever reached for common tea produced in India (equivalent to a 400 percent rise) was temporarily recorded in Calcutta early in 1943.

Production in the black-tea countries remaining within the Regulation Scheme had already been stimulated by increased export quotas after the involuntary withdrawal of the Netherlands Indies. Now an even greater impetus was given to production because government purchases were to cover all available exportable supplies.

For the 1942/43 season the Food Ministry announced that the total exportable surplus from India and Ceylon would amount to about 698 million pounds. Allowing for around 500 million pounds for consumption in the United Kingdom and by British forces abroad, there would be about 200 million pounds for the United States, Canada, and Australia. For the 1943/44 season, trade circles believed that roughly 730 million pounds of tea would be contracted for: 431 million pounds from India; 270 from Ceylon; and 30 from British East Africa (principally Nyasaland and Kenya).⁸ India and Ceylon were producing enough tea to supply the United Nations with approximately 80 percent of their normal requirements, but the problem for markets outside the United Kingdom was how to get their shares in view of the military demands upon available shipping.

Allocations to participating countries for 1942/43 and 1943/44 were based on 90 percent of their estimated average absorption during a base period 1934-38. For 1944/45 and later years of shorter supplies and increased demands from the services and liberated coun-

⁸ "Tea Supplies," *Economist*, Aug. 21, 1943, p. 249.

tries, a system of priorities was established. The three categories of priorities were:⁹

- Group I.—Essential requirements not susceptible to reduction, namely all services and the U.S.S.R. whose demands were below 50 percent of its prewar consumption.
- Group II.—Countries for which the maintenance of an adequate supply of tea was essential from the point of view of the war effort.
- Group III.—Other countries.

The requirements of Group I were to be met in full, Group II was to receive allocations based on 75 percent of 1934–38 average absorption, and Group III was to receive 50 percent.

Brokers and exporting firms in Calcutta and Colombo were formed into boards for the purpose of valuing, selecting, and allocating suitable grades for each consuming country participating in the Central Buying and Allocation Scheme. Responsibility for securing the necessary freight, and for shipping the tea, rested with the producing country concerned, each appointing its own representatives for that purpose. The official report states that the arrangements worked “very effectively.”¹⁰

The Central Buying and Allocation Scheme continued after the war under different organizational auspices until its termination in March 1947. Thereafter the British concern was solely with the domestic supply of tea for the United Kingdom. Although part of the story of British management of the wartime tea trade belongs in the postwar period, it is convenient to summarize it here.

Upon termination of the Combined Food Board in July 1946 the activities of the Tea Committee were continued under the successor organization, the International Emergency Food Council (IEFC). The Committee was reorganized without Southern Rhodesia and the U.S.S.R., but China was elected to membership. In the same year small quantities of tea became available from China, Japan, and Indonesia, but they were so small that these countries were not brought into the general scheme of purchase and allocation.

The official summary of wartime and postwar activities of the organizations concerned with buying and allocating tea supplies is contained in an IEFC report, on which Tables 12 and 13 are based.

⁹ International Emergency Food Council, *Report of the Secretary-General to the Fourth Meeting of the Council* (Washington, D.C., July 1947), p. 104.

¹⁰ *Ibid.*

TABLE 12.—EXPORTABLE SUPPLIES AND DELIVERIES OF TEA, 1942-47*
(Million pounds)

Year (April- March)	India		Ceylon		British East Africa		Total	
	Esti- mated export- able surplus	Deliv- eries during year	Esti- mated export- able surplus	Deliv- eries during year	Esti- mated export- able surplus	Deliv- eries during year	Esti- mated export- able surplus	Deliv- eries during year
1942/43	421.0	342.4 ^a	277.0	288.8 ^a	30.0	23.5 ^a	728.0	654.7 ^a
1943/44	405.4	432.1	253.0	265.9	20.1	19.0	678.5	717.0
1944/45	368.0	363.7	271.0	266.0	20.0	16.7	659.0	646.4
1945/46	374.3	386.2	258.0	265.6	24.4	18.8	656.7	670.6
1946/47	412.0	367.8	264.2	241.9	22.5	19.5	698.7	619.2

* International Emergency Food Council, *Report of the Secretary-General to the Fourth Meeting of the Council* (Washington, D.C., July 1947), p. 102.

^a Includes tea purchased privately before Co-ordinated Purchase Scheme began.

TABLE 13.—AVERAGE PRICES PAID BY THE MINISTRY OF FOOD
FOR TEA, 1942-47*

(Shillings and pence per pound)

Year ^a	North India (ex. warehouse)		Ceylon		British East Africa (f.o.b.)	
	S.	d.	S.	d.	S.	d.
1942/43	1	2½	1	5	1	11½
1943/44	1	5¼	1	7¾	1	11½
1944/45	1	5¼	1	8	1	2¼
1945/46	1	6¼	1	10½	1	2¼
1946/47	1	6¼	1	10½	1	2¼

* IEFC, *Report* (1947), p. 104.

^a Prices were "taken toward the end of each year."

It will be noted that peak deliveries were made in 1943/44 and that in 1946/47 they were substantially short of estimated exportable surpluses. Not all of the tea contracted for was forthcoming. The cumulative shortfalls over a series of years from British East Africa amounted to around 14 million pounds, and although the crop estimates for Ceylon were reached in 1946, some 30 million pounds were not expected to be delivered from that source. The official report states: "A number of contracting estates have not implemented their offers, the reason presumably being that 1946 crop tea which should have been made available to the Tea Commissioner has been sold at higher prices at the Colombo auctions."¹¹

¹¹ *Report of the Secretary-General to the Fourth Meeting of the Council*, p. 100.

Apparently no penalties were attached to nonfulfillment of Ministry contracts, and, for understandable political reasons, the British government was reluctant to exert pressure on its colonials. The allocating committee, of course, had power only to recommend, but all of its plans were based on the assumption that MOF contracts would be fulfilled and that co-operation among participating nations would be forthcoming.

THE WAR AND PRODUCING COUNTRIES

Tea-growing areas of the world were more directly involved in World War II than the coffee- and cocoa-growing regions, yet the repercussions on the industry seem to have been less. This was partly due to the structure of the industry. So much of the world's tea output is noncommercial that the war in the Pacific affected Western supplies less than it might some years ago, when dependence upon China, Japan, and Formosa was greater. Nevertheless, the loss of supplies from the Japanese-occupied Netherlands Indies was to be felt even after the war had ended.

With Dutch tea producers eliminated from the trade, the commercial tea industry during the war became almost exclusively British. India, Ceylon, and British East Africa were practically the only sources of exportable tea, and two of these sources were close enough to fighting fronts to receive a rather full impact of the war. This was especially true of North India, the principal source of world tea supplies, but also of Ceylon, the second ranking source. Their problems of expanding output to compensate for lost production from Java and Sumatra were complicated in several ways.

Aside from shortages of fertilizers which were necessary to increase yields, both India and Ceylon experienced labor shortages and difficulties in securing ample food for plantation workers. In Ceylon the situation became especially acute. Ceylon does not grow enough rice for its own requirements, and normally imported from Burma. After the Japanese occupied Burma, this source of supply was shut off and rice prices rose to fantastic heights, thereby contributing materially to the rise in the cost of growing, harvesting, and processing tea. Furthermore, Ceylon has long depended upon migratory labor from South India, especially for plucking operations. This source of supply was largely closed. At the same time labor was in demand for military works. Ceylon became the base of Allied operations in the Indian Ocean area as the Pacific war spread westward and Japanese aggression threatened, for a time, both India and Ceylon.

Even more directly involved in the war, however, was Northeast India. The fall of Rangoon to the Japanese in March 1942 was accompanied and followed by an exodus from Burma into India upon an enormous scale. While the tea industry of North India was counted upon to make up a large part of the world deficit in tea supplies, it suddenly found itself on an active war front.

Growers of coffee, tea, and cocoa in various parts of the world were participants in one form or another in the war effort, but it is doubtful if any group was more actively involved, or made a greater contribution, than the tea industry of Northeast India, particularly the tea growers of Assam. Theirs was a double responsibility of maintaining and expanding tea output, and evacuating refugees from Burma in 1942, and later, in 1943, operating numerous military projects essential to the war effort. Northeast India was a front line at this time, and the planters identified with the India Tea Association were in the thick of the war.¹²

Demands of purely military origin developed unexpectedly. The tea-garden labor supply, managerial and supervisory personnel, supplies and equipment of all kinds were affected. At first, in 1942, the industry was called upon to assume the main responsibility for rescuing and caring for the thousands of refugees making their way from Burma to India. The industry's achievement is recounted in detail in Geoffrey Tyson's *Forgotten Frontier*, published in India in 1945.

In 1943 the tea industry was called upon to organize and administer various so-called Eastern Frontier Projects which involved road building, the laying of pipe lines, installing concrete runways for airfields, and so on—all related to plans for a British return offensive against Burma. Many thousands of tea-garden workers volunteered for such work for periods of several months at a time. Managers, supervisors, medical officers, and others associated with the tea industry also gave their services, thus depleting the operational setup of the gardens. Despite all the obstacles, the industry of North India produced its largest crop then on record.

It was during this 1942–43 period that the only serious difficulties were encountered in the operation of the machinery of purchasing and allocation. In late 1942 and early 1943 some mild air raids in

¹² One estimate suggests that, in addition to the many thousands of tea-garden laborers, about one out of every two planters in both North and South India went into service. *Tea on Service* (The Tea Centre, London, 1947), p. 81. The proportion was even higher in North India, where the industry is justly proud of its wartime achievements. Details are found in various reports of the Indian Tea Association, Calcutta, e.g., annual reports for 1942 and 1943, and *Proceedings*, 62nd Annual Meeting, Mar. 12, 1943.

Calcutta disorganized the labor forces of the port and created a certain amount of confusion and congestion in warehouses.¹³ Added to this, from 1942 to 1946, the port of Chittagong was closed for tea shipments, and all production had to funnel through Calcutta, at a time when the North India crop was increasing 30 percent over pre-war.

Meanwhile auction sales for tea consumption in India continued to be held regularly. Prices fluctuated widely, but despite high quotations for considerable periods, domestic consumption continued to grow. Calcutta tea brokers, who pooled their resources in 1940, did not resume their individual identities until mid-1947, the first post-war year of free trading with overseas markets.

GOVERNMENT CONTROLS IN THE UNITED STATES

In the years immediately preceding the onset of war in Europe, the United States was the second most important Western market, absorbing annually about 87 million pounds of tea of all kinds. There was some tendency for imports to increase in the late 1930's and, after the outbreak of war, they expanded materially. In 1940, as wholesale tea prices rose steadily, imports into the United States were just under 100 million pounds, and in 1941 they amounted to over 107 million pounds, the highest level since 1918.

The uncertainties in the Far Eastern situation began to be reflected in imports of green tea into the United States some months before Pearl Harbor. Whereas imports of tea from all other sources were up substantially in 1941, a year of exceptional imports, official examinations of green teas, which came mainly from Japan, fell to approximately half the volume of the July–October period of 1940. "The decline was especially apparent in the month of October, when the amount of Japan and Taiwan teas examined was 90 percent smaller. . . ."¹⁴

The year following the United States' entry into the war, imports shrank drastically as prices were frozen and teas from the green-tea countries were eliminated. Soon thereafter the Netherlands Indies was lost as a source of black-tea supplies. Gross imports for 1942 dropped to slightly under 50 million pounds. Under the tea-pooling scheme worked out in September of that year, the United States was

¹³ J. Thomas & Co., Ltd., *Annual Report, Season 1947–1948, Calcutta Tea Market* (Calcutta, 1948), p. 2.

¹⁴ Mary L. Bynum, *The United States Coffee, Tea, and Spice Trade, October 1941* (U.S. Dept. Comm., Industrial Reference Service, Part 3, "Foodstuffs," December 1941), p. 9.

civilians. The Armed Forces were scheduled to receive more than 14 out of the total available supply of 90 million pounds. About 1.5 million pounds were scheduled for export, mainly to the U.S.S.R. Actual imports for 1944 totaled 90.2 million pounds and re-exports 0.8 million pounds.

Considering the number in the services, the supply probably available for civilian consumption in 1944 was very little under peacetime consumption requirements. The Tea Bureau reported 1943 year-end stocks up to 23.3 million pounds. Imports for 1945 were down somewhat from the 1944 level at 83.8 million pounds (due chiefly to smaller takings from India), but were still not so much below the level of earlier years as to cause hardship.

Altogether, tea consumers in the United States managed to continue their drinking habits, without great modification, throughout the war. Nevertheless, tea lost ground because coffee was more abundant during most of the period. Per capita tea consumption dropped from just under three-quarters of a pound in 1939 to a little over half a pound in 1945. This was the result of shortened supplies, the cessation of tea producers' propaganda, and the inability to provide the qualities and varieties of teas most in demand by habitual tea drinkers.

Canada was in somewhat the same position except that prewar per capita tea consumption was about five times as large as in the United States, and coffee consumption per capita only about one-fourth as large. It was necessary to ration tea in Canada, reducing per capita consumption from 3.5 to 3.2 pounds. This shifted many users to coffee, which remained unrationed, and resulted in an increase in coffee consumption from 3.6 to 5.1 pounds per head. Canadians still consume more *cups* of tea than coffee, but for various reasons (see Chapter 17) the war accelerated changes in their beverage consumption pattern.

BRITISH MANAGEMENT ABROAD AND AT HOME

British management of the tea trade during the war was notably efficient and effective. Despite similar experience in World War I and long familiarity with problems of the tea trade, there was the usual initial fumbling, but the early difficulties seem to have been quickly overcome. The "back-room" story of tea production, distribution, and rationing during World War II has been told briefly elsewhere. A few selected excerpts are appropriate:

There was a certain grand simplicity about the method whereby tea was distributed to the United Nations . . . Many other foodstuffs were dealt with

by bulk purchase, but tea was really "streamlined" . . . no serious complaint was ever received from any of the fifty-four United Nations, . . . At all stages the Ministry had the co-operation of the former independent traders . . . received the full benefit of the trade's expert knowledge and operational skill, but retained freedom of action in determining policy . . .

At the eastern ports brokers and exporters made themselves responsible for the detailed work of valuation of crops, warehousing and so on . . . Mincing Lane, similarly, under the Ministry's instructions, provided the machinery for allocation and distribution of tea to the home consumer . . .

tea . . . was the victim of excess zeal in the very early days . . . Hectic dispersal methods were decided upon, and in the autumn of 1939 tea was sent hither and thither . . . it is painful to contemplate how long it took to trace the thousands upon thousands of chests thus dispersed . . . the more reasoned system of dispersal which came later did much to reduce losses by enemy action . . .

Ninety per cent of Britain's tea imports come into the London Docks . . . the huge warehouses . . . were magnificent targets . . . some five hundred emergency warehouses were set up . . . blending itself, the City of London's great prerogative, was decentralized . . . [there] followed considerable savings of transport . . .

As a very rough estimate . . . only about 2,000 tons was a total loss . . . only 0.006 per cent of the total stock of tea in this country at any one time . . . tea which could not be used . . . [was] disposed of mainly for . . . the extraction of caffeine . . . [and] as a fertilizer . . .²²

A diagrammatic view of the machinery set up for the procurement and distribution of tea is provided by Chart 9. This is considerably simplified from the original organization chart supplied through the courtesy of the late Henry Jones, Director of Tea of the Ministry of Food. The fine lines show the principal lines of communication and contact but are left unlabeled for clarity. They refer primarily to the many details of operation that are vitally important in the aggregate but are not essential for present purposes.

One experience of World War I was avoided in all tea-consuming countries during World War II, i.e., the necessity for pooling tea supplies into a single national blend or brand. Consumers and the trade alike, especially in Great Britain, looked with great disfavor upon this idea, recalling the unhappy experience of 1918 when tea was classified with "luxury foodstuffs and drinks," and all blends were standardized and sold as "National Control Tea" everywhere in Great Britain at a fixed price. Yet resort to this expedient was

²² *Tea on Service*, pp. 77-96.

civilians. The Armed Forces were scheduled to receive more than 14 out of the total available supply of 90 million pounds. About 1.5 million pounds were scheduled for export, mainly to the U.S.S.R. Actual imports for 1944 totaled 90.2 million pounds and re-exports 0.8 million pounds.

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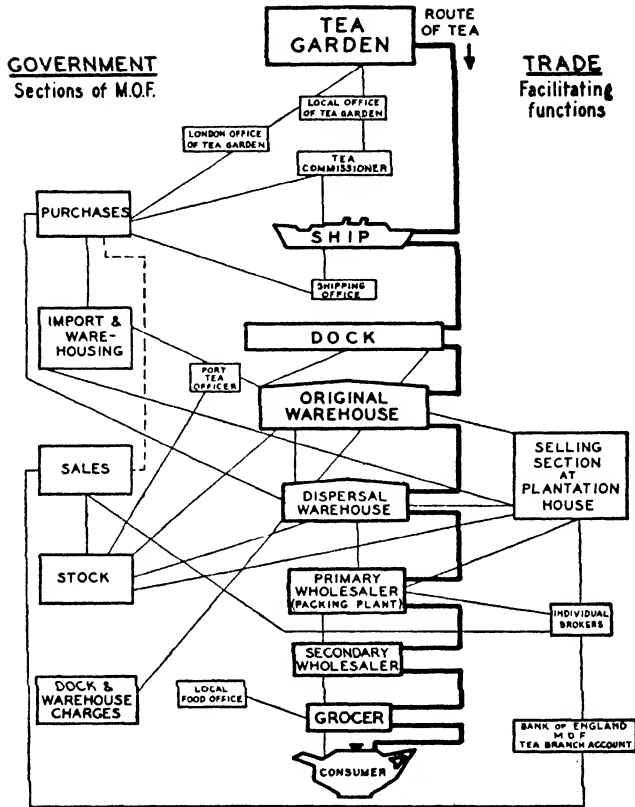
As a very rough estimate . . . only about 2,000 tons was a total loss . . . only 0.006 per cent of the total stock of tea in this country at any one time . . . tea which could not be used . . . [was] disposed of mainly for . . . the extraction of caffeine . . . [and] as a fertilizer . . .²²

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²² *Tea on Service*, pp. 77-96.

CHART 9.—BRITISH ORGANIZATION OF TEA PROCUREMENT AND DISTRIBUTION*



* Adapted (and simplified) from an organization chart of the Ministry of Food.

only barely escaped in World War II, and the Minister of Food took great satisfaction in being able to avoid it.²³

Tea controls in Great Britain were continued well into the postwar period and were apparently acceptable to all but the most enterprising members of the trade, if not to the rationed consumer. They provided security, especially for the small dealer whose position tended to improve relative to the big companies, about 7 of which were thought

²³ "When London was being persistently bombed, I had to tell the tea blenders to remove their stocks to less vulnerable positions—and at that time we were nearly driven to 'Pool Tea.' All the organisation was ready for it; the packages and even the labels were ready. . . . Not once but thrice when we were in danger did we consider this alternative. . . . I'm glad to think that, in some measure at any rate, the people were able to get the sort of tea they wanted. . . ." Lord Woolton in *Tea on Service*, pp. 75-76.

to account for approximately 70 percent of the business in 1949.²⁴

The retailer of tea nominated a supplier (or suppliers) under the British system, and thereby qualified as a receiver of a certain amount of tea. In prewar days the tea wholesaler bought what he thought he could sell, and his mistakes were sometimes costly. Under government controls his margins were fixed—smaller than prewar when margins were apparently not large—but his risks of loss were essentially eliminated.

Undoubtedly the system was economical, removed worries, and helped the small merchant to maintain his position, but an outside observer might be somewhat disturbed to find some (as of 1949) who apparently favored continuance of the system indefinitely.²⁵

Tea was finally removed from international allocation recommendation at the end of the first quarter of 1947, "in view of the announced decisions of the governments of India and Ceylon to discontinue the bulk purchase arrangements instituted at the outbreak of the war. These arrangements were felt to be such an integral part of the entire system that it was decided not to attempt to continue. . . ." ²⁶ Despite the announced government decisions, contracts were made with the Ministry of Food in later years (see below).

With the formal liquidation of the Central Buying and Allocation Scheme, the successful co-operation between governments and the tea industry and trade, necessitated by the war, finally came to an end. Only the British continued to buy, ration, allocate, and negotiate prices of tea for home requirements. In other tea-consuming countries of the world, markets were again free and conditions approached normal, except for temporary deficiencies in the quality and quantity of available supplies. In the producing countries, costs continued to rise and the industry was confronted with various problems of adjustment and reorientation which are considered in the chapter that follows.

²⁴ Private estimate of a highly placed official in British tea circles.

²⁵ This sentiment, however, was not in accord with that found in other segments of the tea trade or among prominent factors in the cocoa and coffee trades in Great Britain.

²⁶ IEFEC, *Report* (1947), p. 99.

REORIENTATION OF THE POSTWAR TEA INDUSTRY

The world shortage of tea in the early postwar period was not expected to last more than a few years. Prospective surpluses, in fact, pointed to the need for maintaining the machinery of regulation and of resuming prewar efforts to promote the consumption of tea. Both the tea industry and trade seemed willing to make quick adjustments as they became necessary. While the International Tea Committee more or less marked time when no problem of regulating exports existed, the International Tea Market Expansion Board resumed its activities directed toward maintaining and increasing tea consumption. Wartime disruption of markets complicated problems of adjustment on the demand side just as political changes presented entirely new problems on the supply side.

CHANGES IN CONSUMPTION

By the close of the 1940 decade, when tea supplies were becoming more plentiful, world absorption in overseas markets was at a rate only slightly below the annual average for prewar years. On a per capita basis, aggregate tea consumption was, of course, lower in the leading world markets. Meanwhile World War II had caused some radical changes in the tea-consumption pattern of individual countries, as suggested by Table 14. The 15 countries included in this tabulation accounted for about 90 percent of aggregate tea imports before the war and approximately the same proportion in 1945-49. Some 140-50 small buyers absorbed the remainder.

Concentration of the overseas market for tea is apparent from the fact that only 5 of the 15 countries tabulated accounted for three-fourths of world imports, the United Kingdom alone accounting for half. About two-thirds of all tea imported into markets outside the producing countries goes for consumption within the British Commonwealth.

United Kingdom imports averaged below prewar until 1949 when they exceeded the earlier level, and per capita consumption, after being more than a pound under the high prewar level of 9.4, was back to 9.3. Rationing of tea was also in force until mid-1950 in

Australia, the third largest Western market; imports were slightly higher than earlier, but apparent per capita consumption continued a slow downtrend. New Zealand abolished rationing in 1948, and both imports and per capita consumption were higher than prewar (1949 data in Table 14 later revised upward). In the Union of South Africa, imports increased just about enough to maintain the prewar level of consumption. Canada, the most important British market after the United Kingdom and Australia, also showed a steady (but slightly smaller) per capita use of tea.

TABLE 14.—AGGREGATE AND PER CAPITA TEA CONSUMPTION IN PRINCIPAL IMPORT MARKETS, 1935-49*

Country	Annual absorption (Million pounds)			Apparent consumption per capita (Pounds)				
	1935-39 average	1940-44 average	1945-49 average	1949	1935-39 average	1940-44 average	1945-49 average	1949
United Kingdom..	443.0	434.5	394.5	466.4	9.4	9.0	8.0	9.3
United States	87.4	83.9	83.3	92.4	0.7	0.6	0.6	0.6
Australia	47.4	45.6	47.7	46.9	6.9	6.4	6.3	5.9
Canada	38.7	37.4	40.1	42.7	3.5	3.2	3.2	3.2
U.S.S.R.	34.9	14.6	10.3	16.8	•	•	•	•
Netherlands	24.6	3.3	11.9	16.7	2.9	0.4	1.2	1.7
Ireland (Eire) . . .	22.6	11.8	18.9	18.6	7.7	4.0	6.4	6.2
French Morocco . .	17.5	5.2	11.5	20.1	2.7	0.7	1.4	2.3
Iran (Persia)	16.5	12.2	14.0	23.0	1.0	0.7	0.8	1.3
Egypt	15.5	12.4	22.6	35.6	1.0	0.7	1.2	1.8
Union of South								
Africa	15.2	16.8	16.8	19.5	1.6	1.6	1.4	1.6
Germany	11.6	3.0	...	4.1	0.2	^b	...	...
New Zealand	10.8	11.3	12.1	10.5	7.1	6.9	6.7	5.6
Iraq	6.4	5.6	10.7	16.0	...	1.5	2.2	...
British Malaya . . .	4.5	5.6 ^c	3.6 ^d	3.9	0.9	1.1 ^c	0.6 ^d	0.6
Total	796.7	703.2	698.0	833.2	...	...	...	...
All other countries	95.9	100.3	75.0	86.5	...	...	...	...
World total	892.6	803.5	773.0	919.7	...	...	...	...

* Based on Appendix Table VII.

^a Available data on Soviet imports, production, and population too uncertain for reliable estimates.

^b Less than .05 pound.

^c Data for 1940 only.

^d Three-year average 1947-49.

On the whole, supplies were fairly well maintained in Australia, Canada, and the Union of South Africa during World War II. In Ireland, however, tea imports were drastically curtailed. Irish imports began to recover in 1946, but at the close of the decade both annual absorption and apparent per capita consumption averaged lower than in 1935-39.

When the participants in the International Tea Agreement decided to co-ordinate their individual promotional efforts on behalf of tea through one organization in the mid-1930's, per capita tea consumption was showing declining tendencies in a number of important markets including the United States, Canada, Australia, and the Netherlands. Table 14 suggests that in varying degrees these tendencies are still operative.

The growing use of coffee and soft drinks in the United States and Canada largely explains the decline in tea consumption in these countries. Although tea imports have been fairly well maintained at earlier levels, they have not kept pace with population growth. In Australia the increasing popularity of fruit drinks, coffee bars, and milk bars, especially among young people, was thought to be the explanation of the decline in tea consumption outside the home, a tendency that was apparently arrested temporarily just before the war. Consumption was at the same average level as the first half of the 1930's at about 7 pounds, but this compares with approximately 8 pounds per capita in the middle 1920's and 5.9 pounds in 1949.

In Holland, the high import duty on tea (equivalent to about 9*d.* per pound) tended to keep retail prices up before the war, encouraged the importation of cheap teas from China, and caused a reversal of a long-term upward trend in tea consumption. With the Japanese destruction of Dutch estates in Indonesia, annual absorption in the Netherlands dropped drastically, and it is still substantially below prewar levels, although tea was derationed at the opening of 1949.¹ Germany, never a tea-consuming nation, nevertheless was a fairly important importer before the war; today tea imports are relatively insignificant.

The U.S.S.R ranked among the leading markets for tea before the war, but in postwar years it was far down the list in continuation of a tendency long in evidence. In the early 1930's the Soviet Union

¹ Partly because of the Dutch interest in selling their limited supplies to dollar areas and partly because of forced changes in habits during war years, when consumers were obliged to use a variety of substitutes for both tea and coffee. In Europe generally, a shortage of milk and sugar, as well as of tea, tended to retard recovery in tea consumption in early postwar years.

still imported enough tea to rank third; in the late 1940's expanding home production was thought to account for more than half of total tea consumption. Tea continues to be very popular in the U.S.S.R., but it is too expensive to encourage wide use. Per capita consumption has declined steadily since czarist times, when it was thought to be around one pound. As of 1940, one calculation placed per capita consumption at only 0.3 of a pound.

Prewar propaganda activities on behalf of tea were directed both toward holding markets with an already high per capita consumption (e.g., the United Kingdom) and toward increasing use in countries with a low tea consumption (e.g., South Africa, Egypt, India, Sweden, and Belgium).

South Africa, like Canada, has been absorbing increasing amounts of coffee, but tea has been holding its place. Consumption among the white population in the cities is as high as anywhere in the world, and probably has reached a saturation point. The rural white population, under Dutch influence, is largely coffee drinking. On a per capita basis the Union of South Africa consumes around 5.9 pounds of coffee annually and about 1.6 pounds of tea. These figures are misleading, however, since the native population—almost a virgin field for either tea or coffee—outnumbers the white tea- and coffee-drinking population approximately four to one.

Although tea imports into Egypt were off sharply for several war years, consumption had been showing a strong upward trend which has been resumed in recent years. In 1949 indicated per capita consumption, while still low at 1.8 pounds, was 80 percent higher than before the war and Egypt ranked as the fifth import market.²

Prior to the industry's surplus problem of the early 1930's tea producers in India, Ceylon, and the Netherlands Indies gave only minor attention to domestic native markets. Western demand for tea was most important, and Western markets were more profitable. The world economic depression, however, gave incentives to exporting countries generally to curtail their imports and encourage local production of previously imported foodstuffs and other goods. Imports of cheaper teas into the Netherlands Indies were radically curtailed, and the native population was urged to use domestic teas. Likewise in India and Ceylon, producers began to look to the home market for absorption of tea surpluses that had started to accumulate.³

² The war forced Ceylon to look elsewhere than Burma for rice supplies, and after the war, while rice was still short, the exchange of Egyptian rice for Ceylon tea came as a natural trade development.

³ Although some attention was given to native markets during World War I,

Estimates of tea consumption in producing countries are not very accurate but suffice to show trends over the past two decades. Growing domestic consumption in the commercially important black-tea countries is clearly indicated by estimates of the ITC. For selected years and in millions of pounds the Committee's "very approximate" figures are:⁴

Country	1931	1935	1939	1943	1946	1948
India and Pakistan.	51.8	72.6	97.6	153.0	165.0	...
Indonesia	18.3	22.5	29.3	...	...	...
Ceylon .....	...	8.7	10.4	14.5	17.1	14.5
British East Africa..	1.5	1.8	2.6	4.8	5.4	7.0

For the green-tea countries, similar but generally less striking gains in local consumption have been recorded:

Country	1931	1935	1939	1943	1946	1948
Japan	59.6	63.8	74.9	105.9	39.7	48.4
Formosa	1.5	0.9	0.9	6.0	...	...

In all cases, of course, per capita tea consumption is still very low, but mass markets exist in regulated countries that remain relatively untapped.

During recent years the potentialities of these domestic markets for tea have been counted upon to maintain a balance between available supplies and Western demand. Before the war the International Tea Market Expansion Board looked forward to the day when India, like China, would consume most of the tea it produced. As in China, with an annual consumption estimated at 500 or 600 million pounds, much of the village water in India is so bad that tea makes an especially acceptable beverage. Furthermore, prohibition is the expressed policy in both India and Pakistan (Moslems are teetotalers by religion and the heaviest consumers of tea), and apparently in bad times beer consumption falls off while tea consumption rises.

Unlike China, India was introduced to tea only within the past century, and development of the Indian industry was by European interests chiefly concerned with exploiting Western markets. Prices for tea, until the 1930's, tended to remain beyond the reach of the masses.

Africa is also looked upon as the market where great potentialities

serious efforts to develop these outlets through consumer propaganda were not undertaken until the Great Depression. The foundation, however, had been laid many years earlier, in India as far back as 1903.

⁴ ITC, *Bulletin of Statistics*, June 1949, *ibid.*, 1950, p. 47.

for expanding tea consumption exist. The continent as a whole, with a population of some 160 million, absorbed about 88 million pounds of tea in 1947, or a little over half a pound per capita. But North Africa and South Africa, where tea drinking is already well established, accounted for over 87 percent of total consumption, yet had only one-third of the population. If consumption of other regions, especially West Africa, could be brought up to the level of North and South Africa, an increased market of nearly 150 million pounds annually is visualized by the International Tea Market Expansion Board as a long-range possibility.⁵

BRITISH CONTINUE BULK BUYING

While the need for expanding world tea consumption was generally recognized in tea circles, many interests in the industry and trade felt that the continued control exercised by the British government was retarding progress. Bulk purchasing was credited with an undue influence on tea prices, and there was no difference of opinion about quality deterioration under the arrangement. Tea consumption, it was generally felt, could not be encouraged under these circumstances.

By way of background, it should be borne in mind that wartime bulk buying, which covered a wide range of commodities, was continued by the British government after the war as a matter of general policy. The system was sponsored by the Labour party as something of a "New Deal" program designed to stabilize prices, insure markets for producers and regular supplies for consumers, and perhaps help prevent booms and slumps. Some of the many commodities purchased by bulk contracts were in short supply and were still rationed. Currency and exchange considerations were also involved.

Although there need be no connection between bulk buying and domestic rationing, the two were linked in political propaganda. Practically all of the arguments for continuation of peacetime bulk buying applied to tea, at least in early postwar years.

When the Ministry of Food contracts expired at the end of 1946, both India and Ceylon were "keen to exploit their position of monopoly sellers."⁶ The governments of the two countries decided to discontinue the wartime bulk-purchasing arrangements, thus forcing termination of international allocations of tea in early 1947. Calcutta and Colombo auctions were reopened in the hope that they might re-

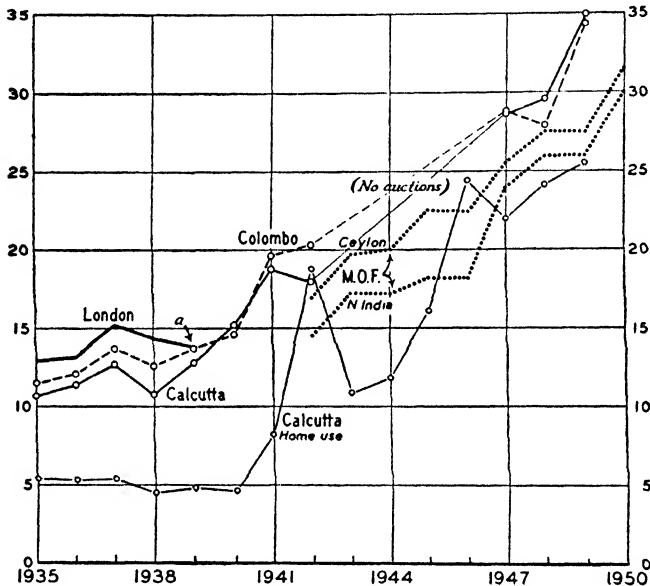
⁵ TIS, *International Bulletin*, June 1949.

⁶ *Economist*, Apr. 12, 1947, p. 556.

place London, and prices soared to about twice the level of the 1946 purchase contract (Chart 10). In addition, Ceylon established a tax of about 14 (U.S.) cents a pound on exported tea, and India one of about 7 cents. Various other new or increased taxes were also imposed as the governments of the tea-producing countries were determined to share directly in any benefits from high world tea prices.⁷

CHART 10.—AVERAGE PRICES OF ALL TEA SOLD AT AUCTIONS AND MINISTRY OF FOOD CONTRACT PRICES, 1935–50*

(Pence per pound)



* Based on data in Appendix Table VIII.

^a London auctions closed Aug. 24, 1939.

The British wanted to continue the bulk-buying system for their own reasons, and tea producers in India and Ceylon were permitted to tender individually for deliveries to the United Kingdom, but only within limits set by their respective governments. The bulk-

⁷ An analysis of the results of 63 of the main sterling companies operating in Ceylon (*Wilkinson's Tea Share Manual, 1949*) showed that, on the average, out of every £100 earned £68 was absorbed by taxation. These companies paid profit taxes in Britain as well as Ceylon. The same situation prevailed in India, but in mid-1950 reciprocal tax agreements were proposed that would relieve the double taxation on British companies operating in these countries. An agreement with the Pakistan government was yet to come.

buying scheme could be worked, provided the offers of the Ministry were sufficiently attractive. Even the greatest world tea buyer was temporarily in a weaker position than the two principal sellers.⁸

The bulk-buying arrangement for tea was advantageous during wartime in insuring the most economical use of shipping space, providing for an equitable distribution of supplies, and preventing an excessive price rise for a scarce commodity. After the war, the situation was different. For the producer the bulk-buying contracts were a form of insurance policy, the attractiveness of which depended upon conditions. While they were a lifesaver during the war years of uncertainties—and probably the only practicable method for maintaining the flow of tea supplies—after the war, when auction markets were reopened, the attractiveness of the contracts depended upon prices obtainable from alternative buyers. When the “free” market was higher than prices established by contracts, producers tended to be dissatisfied, failing perhaps to realize that such prices as were obtainable for residual amounts of tea not contracted for were heavily dependent upon the amount of tea removed from the market under the purchase agreements.⁹

As it was, the Ministry of Food was not successful in securing all the tea it wanted in either 1947 or 1948. Tenders from Ceylon especially fell far short of the purchase offers, but this was primarily due to the higher prices ruling in the Colombo market.¹⁰ In 1948, however, when the situation was reversed, the government of Ceylon was willing to consider a new contract for 1949.

During the late 1940's it was anticipated that conditions in the world tea market would soon return to normal, but the bulk-purchas-

⁸ Much of the legislation passed in the producing countries that added new burdens to the tea industry was considered by British interests to be quite unnecessary. Various government moves and attitudes were described in terms of “nationalistic actions.” To some, the greatly increased export duties were held to be government “loot,” and the raised “dearness” and other allowances unneeded. Nevertheless, in order to do business, the Ministry of Food found it necessary to absorb the export taxes.

⁹ In 1948 Ceylon tea not sold to the United Kingdom created a local surplus that had to be sold about 5 cents a pound lower than the Ministry of Food contract price. In India the situation was reversed; tea not sold to the Ministry brought higher prices at the Calcutta auctions. The Ministry itself made occasional use of Calcutta and Colombo auctions for securing supplementary supplies.

¹⁰ Asking for 150 million pounds in both years, the Ministry received tenders for only about 92.5 million in 1947 and 96.5 million in 1948. In 1947 the contract price had been raised 3*d.* in order to induce adequate offers, and the Ministry agreed to pay the export duty of 7*d.* In 1948 the Ministry's offer of another 2*d.* increase was at first rejected (Ceylon wanted 4*d.* in line with auction prices at the time) but finally accepted.

ing scheme was continued and the London auctions remained closed. The size of stocks¹¹ accumulated by the Ministry was still a secret, and rationing continued in Great Britain. Contract prices rose with the steady increase in tea production costs, but from year to year the issues involved in negotiations seemed to become more complex.

Contract negotiations were complicated by delicate political considerations and by the creation of native governments in India, Ceylon, and Pakistan. Producers' associations, the actual negotiators with the Ministry, came under a cross fire from both sides.

For example, although "free" prices at Colombo averaged at least 4*d.* higher than the Ministry contract in 1947, the producers of Ceylon were prepared to accept a 1948 contract on the basis of a 2*d.* increase; but the government rejected the proposal, at least initially. Government officials were reported "considering various means of obtaining the highest possible prices." Among the measures advocated was the prohibition of exports except through the Colombo auctions,¹² setting up a single marketing agency for all Ceylon teas and negotiations only on a 3-to-5-year contract basis.

In commenting on Ceylon's rejection of the Ministry of Food's offer (later accepted), the *Economist* considered the possibility of Indonesian competition toward the end of 1948. Increased supplies might constitute a threat to the stability of the Colombo market. The Ministry "realises that any long-term contract for large supplies would effectively neutralise Indonesian competition." In these negotiations the short-term advantage was clearly with Ceylon, but time appeared "to be on the side of the British consumer."¹³

Political bargaining on both sides seems to have been involved as much as, or more than, the economics of the situation. The partitioning of India was in process, and the future relationship of the

¹¹ Undoubtedly they were not considered adequate. In mid-1947 tea stocks were officially described as "extremely low," and trade estimates in 1949 placed the drop between January 1947 and June 1949 at 60 to 70 million pounds. The Ministry of Food dealt, of course, as a private trader would, not disclosing his position or situation any more than was necessary, a secrecy destined to continue so long as bulk buying was in force. In view of the accumulated pressures and constant agitation for de-control, it seems probable that London tea stocks were not built up sufficiently, at least in the judgment of government experts, to permit resumption of free markets sooner.

¹² In 1947 both the Indian and Ceylon governments had issued instructions that all tea should pass through the Calcutta and Colombo auctions. This, of course, was not a popular idea in tea circles, and it complicated negotiations with the Ministry of Food until the instructions were modified as "impracticable."

¹³ *Economist*, Jan. 24, 1948, p. 152.

new states to the Commonwealth was undecided. Ceylon producers were frankly told that India might get a more favorable 1948 contract because the new government was "more friendly" and "more favorable" to bulk purchasing than Ceylon. On the other hand, Ceylon producers, despite presenting their case for higher prices in terms of increased production costs, were apparently willing to negotiate a price more or less irrespective of their statistical evidence on costs.

In negotiations the Ministry of Food could always remind producers of the dangers involved if it should refuse to offer contracts, regardless of price terms. Under bulk buying, growers were at least assured an outlet and a guaranteed price for most, if not all, of their production. On the other hand, the British government could not afford to be high-handed in view of its desire to keep the producing countries within the Commonwealth on some basis, and the need for keeping tea consumers (and voters) content at home.

The bulk-buying system necessarily emphasized quantity rather than quality. Contracts were negotiated on a cost basis, admittedly "wrong in principle and very wrong in practice."¹⁴ Instead of buying on quality, government offers were based on actual cost of production. As noted elsewhere, tea production costs vary so enormously that it was naturally impossible to set prices that would be absolutely fair to all producers. This helps to account for wide departures from uniformity in company results during recent years (Appendix A).

The trade was acutely conscious of this weakness, especially as the time grew nearer when tea supplies would be ample. In the war period of all-out production, some lowering of the general level of tea quality was necessary to increase tonnage. After the war, buyers generally favored a return to London auctions as the best and quickest means of improving the situation. They expected to be able to get just the teas wanted in this broad market, and thought demand would soon restore the price premiums formerly secured for the best grades, thereby providing an incentive to producers for improvement.

Under the bulk-purchasing arrangement British buyers were obliged to get along with teas offered by the Ministry. United States buyers, on the other hand, were free to operate on open markets wherever available. Many preferred to buy, as in the prewar years, from London, but they were more or less forced to deal directly with pro-

¹⁴ Quoting the late Henry Jones, Director of Tea of the Ministry of Food. The functions, operations, and costs of this division of the MOF are described in an official memorandum reprinted in *Tea & Rubber Mail*, Jan. 26, 1950, pp. 38-39.

ducing countries. In any event, they were very much in the dark in appraising the tea outlook; so much depended on the buying policies of the British government.¹⁵

Agitation in tea circles for a return to London auctions and a free market increased in the postwar years, yet for 1949 and 1950 the bulk-buying system was still used despite objections of most trade interests and brokers' associations.¹⁶ The auction markets in producing countries were considered a threat to the position of Mincing Lane, which was destined to remain closed so long as the government buying scheme continued in effect.¹⁷

Ministry contracts for 1949 were on the same basis as 1948 but for 1950, after more protracted negotiations than ever before, they were concluded tardily at 4*d.* per pound increase. The producing countries wanted at least a 6*d.*–7*d.* raise and the amount of tea involved to be reduced. The United Kingdom was expected to buy 275 million pounds from India *vs.* 292 in 1949. Ceylon wanted to sell only 100 million pounds *vs.* 130 in the previous year when only 119 were actually tendered. (A contract was finally signed for 110 million pounds out of Ceylon's 1950 harvest and the first three months of 1951.) Approximately 30 million pounds were scheduled for purchase from both Pakistan and British East Africa. But because of the delays (about 4 months) in the long negotiations, it was not expected that the Ministry would receive nearly the full amount of tea contracted for in 1950, nor would the quality of leaf be as good as previously.

In view of supply uncertainties and the difficulties experienced in

¹⁵ In referring to the plans of the Ministry of Food in 1948, a prominent tea importer expressed American views when he said: "We can almost say we know nothing . . . why they want such a huge quantity; what they are doing with it; what kinds, grades, and qualities they will want if they do buy more; when they will buy it; to what extent they will follow the market up; what their general policy will be in the face of rising costs; and, since tea is being subsidized to the British consumer to the extent of about 15c per pound, how long the Treasury can stand this drain." H. P. Thomson, "*The Outlook for Supply and Quality*" (Speech at Tea Convention, Swampscott, Mass., mimeographed, Sept. 14, 1948).

¹⁶ The British Federation of Commodity Associations, Ltd., for example, took the position that the sooner controls were removed, the better it would be for the industry, arguing that the market would quickly find its own level, the tea shortage was likely to disappear, and sales to the United States would probably increase—an important consideration in the British postwar need for dollar earners. See *The Procurement of Foodstuffs* (London, n.d. [1948?]), p. 17.

¹⁷ What was described as "an initial step" toward the reopening of Mincing Lane occurred in August 1947, when the British government permitted private merchants to import tea on their own account, on condition that it be re-exported after blending.

reaching agreements with the governments of India and Ceylon, it seemed clear that a change in British procurement policy would have to be made. Prospective changes were announced in May 1950 as the contracts for that year were finally signed. These involved discontinuance of bulk buying in the future, reopening of the London market, and meanwhile a reduction in the British tea ration.

Most embarrassing was the necessity for cutting the ration back to 2 ounces from $2\frac{1}{2}$ (as of July), inasmuch as it reflected upon the Labour party and its bulk-buying policy.¹⁸ Abandonment of this policy, at least for tea, was interpreted as an admission of its failure under existing conditions.

In July the Ministry announced that the London Tea Market, closed since 1939, would reopen in April 1951, at the termination of the 1950 bulk-purchasing contracts. But "for a time" the operation of the trade was to be "in conformity with regulations which provide for rationing, price control and the subsidy."¹⁹ Tea supplies were not expected to be adequate for the *full* requirements of consumers by 1951; hence the need for continuing controls, and only partial restoration of tea to trade channels.

So long as the British continued the system of bulk purchasing for tea, the "world" level of tea prices and changes in it could be evaluated only in general terms. Before the war, prices in the London market were the recognized barometer of tea prices generally; and the London auctions were quick to reflect changes in world markets. In recent years, the two principal primary markets have been the weekly auctions in Calcutta and Colombo, but prices ruling in these markets (Chart 10) have tended to be misleading and have therefore had limited significance.²⁰

While the tea trade was looking forward to decontrol and a return to free markets, the tea industry was planning to resume controls of another type. Anticipating the need for marketing controls after

¹⁸ At the same time that the British consumer had his tea ration cut, Australia, the only other major tea-consuming country still under wartime rationing, discontinued controls and subsidies, and ended rationing.

¹⁹ *Ministry of Food Bulletin*, Aug. 19, 1950, pp. 7-8.

²⁰ Distortions in prices while the London market was nonexistent were mainly attributed to: (a) the vast weight of tea removed from primary markets by bulk purchasing of United Kingdom requirements; (b) the substantial range in types and qualities offered at different times through the year with characteristically wide seasonal fluctuations in price, precluding the establishment of "representative" prices or sound indications of trend in relatively narrow markets; and (c) the impracticability of separating the influences of quality or type, season, or forces of supply and demand, thereby making it possible for paradoxical situations to develop such as lower recorded prices in a period of stronger demand.

the end of the world tea shortage, the prewar machinery for regulating the quantity and flow of exports from black-tea producing countries was maintained on a stand-by basis.

INTERNATIONAL TEA REGULATION SCHEME

Upon the expiration of an extended International Tea Agreement at the end of March 1948, an Interim Producers' Agreement was entered into by industry representatives from India, Pakistan,²¹ Ceylon, and Indonesia. Its maximum life was to be two years. Meanwhile it would terminate if the Charter of the International Trade Organization (ITO) was adopted by United Nations' participants and came into force. Any new scheme of regulation for tea would be required to be in conformity with the provisions of Chapter VI of the Charter providing for intergovernmental commodity agreements.²²

The ITO Charter had not been adopted but the same four countries concluded a new 5-year Agreement in 1950.

Having regard to possible developments in the international sphere, it is recognized in the Preamble that the terms of the Agreement may be subject to fresh consideration and review in the light of any international obligations which the Governments of the regulating countries may assume during its currency.

The main features of previous Agreements were continued, but the restrictions on new planting were liberalized and the quota was raised slightly.²³

In the Interim Agreement extensions on land not planted to tea were limited to 2 percent of "permissible acreage" annually, and replacements were allowed up to 5 percent, such replacements to be "accompanied by simultaneous uprooting" of old tea. In the new 1950-55 Agreement allowable extensions were raised to 5 percent and replacements to 10 percent. These changes represented considerable liberalization of earlier provisions which prohibited new planting except in special circumstances.²⁴

²¹ Pakistan was given 4 of the 38 votes formerly allotted to India but its petition for an allocation of 100,000 acres *vs.* 76,700 was denied. Representation of Ceylon and Indonesia remained the same as in the original 1933 Agreement at 25 and 17 votes, respectively.

²² The more important respects in which the various producers' agreements have differed in principle from the terms of Chapter VI of the Charter are considered in our Chapter 18.

²³ The only other change of consequence was to make special export licenses issued by April 14 in any one year valid up to, but not after, the end of that regulation year.

²⁴ Text of the 1948-50 Agreement will be found in the Committee's *Report for the Period from 1st April 1941 to 31st March 1949*, pp. 32-41, and of the 1950-55 Agreement in its report for the following year, pp. 15-27.

“Permissible acreages” in the Interim Agreement were fixed on the assumption that advantage had been taken of the small allowances (maximum of 0.5 percent annually of existing total planted area) provided for during the three previous Agreement periods. As increased in the 1950–55 Agreement, these were:

Country	Interim Agreement	1950–55 Agreement
India	775,700	806,728
Pakistan	76,700	79,768
Ceylon	565,603	588,227
Indonesia	519,012	539,772
	<hr/>	<hr/>
Total acres	1,937,015	2,014,495

The effect of the increased allowances for extensions and for replacements would undoubtedly be some expansion in the total area under tea, but, for a few years at least, very much less than was theoretically possible.

The Interim Agreement and the new 1950–55 Agreement continued to provide for regulation of exports on the basis of Standard Exports, fixed as follows (in pounds):

India	348,246,170
Pakistan	34,996,746
Ceylon	251,588,012
Indonesia	173,597,000
	<hr/>
Total pounds	808,427,928

The quota set for the period of the Interim Agreement at 125 percent was the same as had been in effect since 1942, but with the new Agreement it was raised to 130 “to ensure the maintenance of unrestricted production.” The Committee desired, as before, to “preserve the principle of regulation.” Each regulating country was, of course, free to determine its own degree of restriction within the assigned limits.

With world tea supplies still short and no need for regulation of exports, the absence of some former participants in these Agreements was not of immediate importance. British East Africa withdrew from the earlier Agreement in the spring of 1947 and did not join the Interim or the 1950–55 Agreements. There, all restrictions on new planting were terminated; and Kenya, Uganda, and Tanganyika (which had made claims for new extensions) were free to expand their tea acreage as they saw fit. Nyasaland was apparently willing

to join the Interim Agreement but was not included because of "special conditions."²⁵ British Malaya, a relatively unimportant tea producer, withdrew earlier, in late 1946, by repealing local legislation restricting planting.

A brief appraisal of the International Tea Exports Regulation Scheme and consideration of the problems and potentialities of tea regulation in the future are reserved for discussion in Chapter 18.

EXPANSION OF TEA-GROWING AREAS

Under the liberalized provisions on new planting in the Interim Producers' Agreement of 1948-50, it was expected that actual expansion in India by the end of the period would be "very much less" than the paper figure of just over 35,000 acres; but in Pakistan, where the government was "greatly concerned with the rehabilitation of abandoned gardens and the planting out of fresh areas," it was "hoped" that output would be increased "considerably" as the result of extension.²⁶ In Ceylon, with permissible extension of over 34,000 acres, it was understood that licenses for planting both on virgin lands and on uneconomic rubber estates would be issued for the bulk of the allotment. Growers wishing to convert rubber estates into tea estates were entitled to government financial assistance.

The extent to which producers in Indonesia could take advantage of the new planting terms of the most recent Regulation Scheme was not known; much rehabilitation work remained to be done, although over 175,000 of the some 530,000 acres that were under tea in Java and Sumatra prior to the Japanese occupation were back in cultivation in 1949.²⁷

Early postwar reports indicated a 30-35 percent decline in Indonesian tea acreage during the war, but later estimates revised this to 20-25 percent. It was thought probable that one-third of the factories had been destroyed. Damage to the tea industries of Java and Sumatra came chiefly from Japanese destruction and neglect, but activities of extremists during postwar years of political turmoil added to the difficulties.

²⁵ In its *Report . . . 1941 to 1949*, pp. 18-19, the Committee states that one stumbling block to approaching East African growers was the interpretation of the Colonial Office that under "the General Agreement on Tariffs and Trade framed in Geneva in October 1947, His Majesty's Government could not agree to any of their Colonial possessions becoming a party to an Agreement which imposed any regulation of exports and of planting, even before the coming into effect of the Charter of the International Trade Organization . . ."

²⁶ TIS, *International Bulletin*, September 1949.

²⁷ *Ibid.*

Officials of the International Tea Market Expansion Board, visiting Java in December 1948, reported that tea bushes over "large areas" had grown 20 to 30 feet high as a result of neglect; wages were up four to five times prewar (supplemented by food and clothing concessions); and, where conditions permitted, heavy pruning programs were under way and rapid strides were being made by producers toward the rehabilitation of estates.²⁸ Their estimates of future tea production, assuming peaceful conditions, were not, however, as high as those of the Department of Economic Affairs in Batavia. Comparisons follow, in million pounds:

Year	Official Early Estimate*	Revised	International Tea Market Expansion Board
1949	66-77	45	30-40
1950	121-132	75-90	60-80
1951	154-165	100-110	90-100
1952	176-189	120	...

* Assuming return of estates to owners by the close of 1947 and stable political conditions thereafter—conditions not fully realized.

Aggregate production of Indonesia in 1950 was reported at nearly 78 million pounds and exports a little over 64 million. This represented a substantial recovery from early postwar years but was still far below prewar levels.

In nonparticipating countries reports suggested that efforts were being made to expand exportable surpluses of tea. When the British East Africa dependencies joined the Regulation Scheme in 1934, it was on the basis of limiting their combined planted area to 39,340 acres by March 31, 1938 (this figure representing a 25 percent expansion in the then existing tea acreage), but by March 31, 1943, the permissible acreage had risen to 58,233. By 1948, when British East Africa was a nonparticipant, aggregate area was reported at 52,270 acres. The greatest increases were in the smaller tea areas which were also the ones reluctant to continue under an Agreement. (See Map 8 on page 247 for orientation.)

Nyasaland, the largest tea-growing territory and the most willing to co-operate, showed the smallest *percentage* expansion. But the reason seems to be the limited possibilities for future growth. Only two small districts in Nyasaland have adequate rainfall and suitable soil for tea, and these are apparently already developed. Yields of around 700 pounds per planted acre could probably be improved with

²⁸ *Tea Times*, January 1949, pp. 3-4.

more labor (which has been short in recent years), but no "appreciable" expansion in acreage is expected within the next few years, according to trade reports.²⁹

Greatest expansion in tea acreage within the next few years is expected in Kenya, Uganda, and Tanganyika, yet the amount of suitable land is considered "strictly limited." Shortages of labor and tea seed will retard progress, temporarily at least.³⁰ A considerable amount of rehabilitation was necessary, in any event, following wartime disruption. An increase of around 10,000 acres in 5-7 years has been thought a possibility, but the production increase from the added acreage would not all be available for export, as local consumption has been expanding rapidly—trebling since 1939.³¹ To some "it is becoming very apparent that the present production of the East African territories will be absorbed by the local market before long."³²

In the green-tea countries a recovery from the wartime slump in tea production is to be expected, but acreage seems unlikely to approach that of prewar years for some time.

The Chinese had a "Three-Year Tea Production Plan" (1947-49) designed to yield around 72 million pounds of various kinds of tea for export the first year. It was hoped that by 1949 this figure could be increased to about 105 million pounds, a level of exports not attained since 1934. The plan called for setting up a Tea Industry Improvement Bureau under the Ministry of Agriculture, installing 15 machine-equipped tea factories each year for processing black tea,

²⁹ Appraisal of the Calcutta broking firm of Carritt, Moran and Co., in *Tea & Rubber Mail*, Nov. 11, 1948, p. 452.

³⁰ Countries that might supply tea seed are parties to the Regulation Scheme under which the export of seed is prohibited.

³¹ *Ibid.* Since April 1947, when East Africa withdrew from the International Tea Regulation Scheme, licenses for new planting have been issued for 30,000 acres in Kenya, 11,500 in Uganda, and 1,000 in Tanganyika. "Much of this development will be carried out by new interests, and in parts of the country outside the existing established areas." *Tea & Rubber Mail*, Oct. 20, 1949, p. 433. The acreage for 1948 was reported as follows:

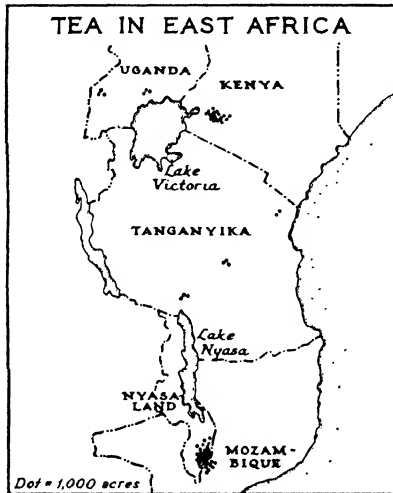
Area	Mature	Immature	Total
Kenya	15,000	2,100	17,100
Uganda	4,500	1,000	5,500
Tanganyika	6,100	2,400	8,500
	25,600	5,500	31,100

According to *Foreign Crops and Markets* (Feb. 12, 1951), the area under tea in 1950 had increased to 34,375 acres and output was estimated at 19.1 million pounds. This source also forecast a production level of around 25 million pounds by 1954.

³² *Ibid.*

establishing grading factories at each large port of export, and providing loans of various kinds to the industry and trade.³³ But the civil war in China prevented fulfillment of these plans, and total exports in 1948 were only about 28 million pounds.

MAP 8



Inflation in China reduced the purchasing power of tea to half of prewar, or less; it led farmers to curtail production, planting food crops instead; and it hit the tea merchants almost as badly as the growers. Notwithstanding surveys and recommendations for improving the tea industry³⁴ in order to re-establish it on a sound competitive basis, progress was slow and seemed destined to remain so for an indefinite period.

In Formosa (now the Chinese province of Taiwan), on the other hand, the China-United States Agricultural Mission thought expansion possibilities were "good" and recommended that first emphasis should be put on rehabilitating the more highly developed tea industry there. Exports in 1948 were 10.5 million pounds compared with

³³ *China Trade Monthly* (Shanghai), March 1947, pp. 201-02.

³⁴ For example, a China-United States agricultural mission in 1947 more or less followed in the path of various earlier Chinese surveys, recommending, among other things, certain obvious needs such as: improved cultivation (more fertilizer); better factory methods (3 modern factories recommended); and organized marketing (growers co-operatives, centralized processing and marketing, improved transportation and communications). See U.S. Dept. Agr., OFAR, *Report of the China-United States Agricultural Mission* (International Agricultural Collaboration, Rpt. No. 2, May 1947), pp. 194-97.

26.1 in 1939. The sharp drop in production occurred after 1941, when tea plantations shifted to the cultivation of foodstuffs and outward shipments were stopped at intervals. During 1942-44, exports were largely confined to Japan and Manchukuo; in 1945, after the defeat of Germany and the blockade of Japan, production and exports almost ceased. The Mission also recognized that green tea should not be entirely neglected in view of United States and North African markets, but conceded that black tea offered the best opportunities.

Japan, the other major green-tea producer, suffered similar drastic contraction in acreage during the war, despite large domestic use, and in exports also. However, in the late 1940's the outlook seemed hopeful for re-establishing the industry and trade. Japanese plans for increasing tea production call for planting 7,352 acres of new tea each year during the five-year expansion and rehabilitation program now under way, with results becoming apparent in 1952. Since the wartime labor shortage has disappeared and fertilizers are more plentiful, observers expect a steady increase in Japanese tea production over the next few years.

In many other parts of the world, minor tea-producing countries are attempting to expand acreage, and former nonproducers are exploring the possibilities of developing a local tea industry. In Brazil, for example, where maté is popular (especially in the South), a modest tea industry has been developing in São Paulo and Minas Geraes, more than 100 years after its early start in that country.⁸⁵ In recent years Brazil has been exporting around 1 million pounds; in neighboring Argentina and Peru, efforts have been made to encourage the expansion of tea growing.

In Oceania tea growing has been considered favorably. Plans to establish an industry in New Guinea were at an "advanced stage" in 1948, according to the Australian Minister of External Territories. Experimental plantings indicated that tea of good quality could be grown on the island. The idea of a tea industry predates World War

⁸⁵ Apparently the early decline in tea production set in around 1850, and was accelerated after slavery was abolished in 1888; but tea received renewed interest after World War I, and acreage was expanded during the 1930's when coffee was unprofitable owing to surplus production. For a brief account of developments, especially in Minas Geraes, see Kenneth Wernimont, "Tea in Place of Gold," *Agriculture in the Americas*, August 1946, VI, 115-17.

Incidentally, during the last century and up to about the eve of World War I, interest in tea-growing somewhat surprisingly also persisted in the United States despite an early recognition (before the abolition of slavery) of the labor-cost handicap. For a brief account, see Nelson Klose, "Experiments in Tea Production in the United States," *Agricultural History*, July 1950, XXIV, 156-61.

II; an experimental plot “. . . was so successful that some experts said New Guinea might prove to be one of the world’s great tea-growing centres.”⁸⁶ In North Queensland, Australia, experiments have also been conducted, but the scarcity of cheap labor and consequent high production costs suggest that tea would probably not be profitable until mechanical harvesting techniques and machinery become perfected and available.

Finally, in various net-importing countries, e.g., the U.S.S.R. and Iran, tea acreage is apparently expanding as home production is being encouraged. In none of these countries, however, are there near-term prospects of achieving even self-sufficiency in tea.

ELEMENTS IN THE OUTLOOK

A decade after World War II began, the world tea industry and trade were still subject to restrictive influences. It seemed unlikely that there would ever be a return to prewar conditions of operation. New problems were unsolved and many adjustments were still to be completed. Yet the over-all pattern of consumption was not basically altered. It seemed certain that in time the general outlines of the long-established world trade in tea would reappear, if not precisely the prewar patterns of production and control.

In his annual report for 1948, the Chairman of the International Tea Market Expansion Board, Ltd. (J. S. Graham), commented:

It is evident that the war and its aftermath have led to profound changes in the pattern of world trade. It is too early to estimate to what extent these changes may affect the fortunes of the Tea Industry. Clearly, however, from movements of such magnitude as the attempt which is being made to resuscitate the economy of Western Europe through O.E.E.C. and Marshall Aid, the projected agricultural and industrial development of Colonial Africa, the drive toward greater industrialisation in Canada, Australia and India, must flow consequences affecting every branch of industry and commerce, the Tea Industry not excluded.⁸⁷

Although it is still too early to appraise the final impact of wartime and postwar developments on the tea industry and trade, certain elements in the outlook repay scrutiny.

Policies of the British government.—Despite the absence of familiar barometers of the international tea market in postwar years (London auction prices and changes in the size of United Kingdom stocks), the market was still being “made” in Great Britain, largely

⁸⁶ *Public Ledger*, Nov. 13, 1948, p. 5.

⁸⁷ *Op. cit.* (London, 1949), pp. 2-3.

the consequence of government buying of all requirements. When one country absorbs more than half the exportable surpluses of black-tea producers, the policies of the government agency become all important. A few million pounds variation in the output or in probable absorption in lesser markets becomes unimportant in comparison with the huge needs of the United Kingdom and, in turn, with British official decisions to contract for more or less tea.

Forecasts of the world tea supply situation were rendered doubly difficult by lack of knowledge about the plans and buying policies of the British Ministry of Food. Estimates of the late 1940's varied widely,³⁸ depending upon guesses as to United Kingdom "requirements" which were determined arbitrarily in conformity with government policy at the time. It was estimated that 410 million pounds would be sufficient tea to maintain the 2-ounce ration; more, of course, would be needed for a 2½-ounce ration. In 1948 the Ministry announced plans to buy 450 million pounds, and in 1949 it was prepared to buy 70 million more than necessary for the existing ration. Differences of this magnitude apparently accounted for the wide range in forecasts (from an anticipated deficit to a surplus condition), so nearly in balance was the over-all supply-demand situation.

In discussing the outlook for 1949, a prominent Calcutta firm commented that

the British Minister of Food has once again donned his favourite garb of Fairy-Godmother and is prepared to buy 70 million pounds of tea more than his Parliamentary Secretary has stated is required to maintain the existing ration of 2 oz. per week per head. Whether this increased quantity is being bought to increase the ration to 2½ oz. again, as many think probable in this pre-election year, or to build up stocks is not known. There is little doubt that it has been made possible by the "wizardry" with which the Chancellor of the Exchequer reduced the subsidy on tea by some £11,000,000 by the simple expedient of abolishing the Import Duty.³⁹

Similar speculation regarding rationing and stock-building plans of the British government was heard from many sources. On the American side, a year earlier, some thought that, since there was no

³⁸ Forecasts from several sources for the year 1949, for example, ranged between shortages of 34-100 million pounds to surpluses of 27-36 million.

³⁹ J. Thomas & Co., Ltd., *Annual Report, Season 1948-1949, Calcutta Tea Market*, p. 13. Sir Stafford Cripps was juggling with the tea subsidy, which was running at 10.5d. per pound in 1948; and by a book entry seemed to be reducing it. The import duty on Empire teas had been 6d., and on others 8d., per pound for many years. Reducing the duty by 6d. meant abolishing it on most tea imports and had the effect of reducing the subsidy to 4.5d., while leaving prices both to the consuming public and the trade the same.

evidence of stock building, the extra tea was wanted for "the ever expanding activities of the Social Service Agencies, who are serving free tea under all sorts of conditions and at every opportunity."⁴⁰

The vital importance of maintaining, rebuilding, and developing the already well-cultivated British market for tea was appreciated in all quarters. If it was government policy for the time being to keep British consumers short of tea for the sake of earning dollars in other markets, then any world supply balance sheet was somewhat artificial. So close was the balance that government decisions on the size of the ration, the amount of tea to be allocated for social services, and the quantity permitted to be re-exported, would be reflected in the size and terms of the purchase contracts; and these in turn would create a statistical balance of supplies and demand, a shortfall, or a surplus.

Thus, increasing imports of tea into Britain was a favor to tea producers, creating a deficit in over-all supplies rather than a surplus, and supporting tea prices in all other world markets. Larger imports were needed if the British tea ration was to be increased, or if tea was to be derationed. But the British dollar problem, and the bulk-buying policy for imported commodities generally, called for keeping the level of purchases as low as politically expedient.

Complaints over the size of the tea ration in the United Kingdom had become frequent in 1948 and 1949, and counterpressures were at work. Consumers wanted more tea, the trade wanted the London auctions reopened, and the government apparently wanted to do both (as well as exploit tea's dollar-earning capacity), but could not. Increasing the ration would slow the building of stocks; and the reopening of Mincing Lane, from the official viewpoint, depended upon an improvement in the stocks position.⁴¹ The size of tea stocks was a state secret, but in mid-1947 they were described as "extremely low" (partly due to strikes in India and Ceylon), and the ration was cut.

In 1949 it was hoped "officially" that arrangements might be made to import enough tea to increase the ration to 2½ ounces, thus restoring it to the 1945-47 level.⁴² This hope was finally realized in

⁴⁰ Thomson, *op. cit.*, p. 2.

⁴¹ Under rationing it was, of course, not necessary to carry tea stocks of prewar size; perhaps supplies for 4 rather than 6 months' requirements were adequate.

⁴² Under a rationing regime British consumers tended to buy the higher-priced teas (which normally means the better quality), but commonly they received poor value, as some distributors capitalized on this tendency and made their sales appeal on a price basis. Both trade and government sources conceded that the resumption of auctions in London would improve quality, yet the supply position remained too tight and a free market was not then in prospect until at least 1950.

December. The announcement of the increased ration was welcomed by consumers, but some members of the trade were highly critical of the "unbusinesslike" operations of the Ministry in view of the start of negotiations with India and Ceylon for the next year's requirements. They considered the MOF bargaining position "much worse," and doubted that the extra allowance could be maintained for long. They were proved to be right, as already noted, when the ration had to be reduced again in July 1950.

Competition and costs.—Although world tea supplies were still on the short side, buyers' resistance began to appear in practically all markets in 1948. At the same time, competition among the teas of India, Ceylon, Java, and Sumatra in world markets (other than Great Britain and the U.S.S.R.) assumed serious proportions for the first time since 1939. Dutch teas, normally cheaper, had begun to appear in fair volume, and had the added attraction of carrying lower export duties than prevailed in India and Ceylon. On the other hand, Indonesian teas were in somewhat bad repute from early postwar dumping of very poor leaf from stocks; and the threat to costs from the appearance of blister blight was thought to promise some offset to their competitive advantages.

By not responding too favorably to the Ministry of Food's offer in 1948,⁴³ producers in Ceylon made available for offering on the Colombo market a wide selection of teas at prices which frequently compared favorably with, or were lower than, those for Indian teas on the Calcutta market. A considerable amount of business from overseas buyers was thus diverted.

Cost data compiled by the industry in North India, and accepted by the British Ministry of Food, showed 1948 costs for estates in the plains of Northeast India 14*d.* per pound above prewar, while Darjeeling tea costs had risen 19*d.* The rise would have been greater had not volume increased notably (and quality deteriorated), but professional observers held the view: "By and large, tea of the pre-war standard could not be produced to-day except at a price which would lift it out of the twice or three times every-day drink of the common man almost to the level of a luxury."⁴⁴

In view of the high-cost structure of the principal black-tea pro-

⁴³ The following year, however, when the Ministry's invitation was for 130 million pounds, offers exceeded requests by 15 million, as prices on the out markets declined to levels which made the contract prices more appealing to producers. But, as already noted, changed market conditions resulted in only 119 million pounds being actually delivered.

⁴⁴ J. Thomas & Co., Ltd., *Annual Report, Season 1948-49* . . . , p. 11.

ducers, and the prospective re-entry of Java, Sumatra, and Japan into the competition—foreshadowing world supplies in excess of demand—some interests felt that artificial restriction was not the way to meet the problem. Curtailed production via regulated exports would mean higher costs, and higher costs in a competitive market would result in smaller profits or even losses. Aggressive producers have been striving for some time for bigger crops as the only method of reducing unit costs under prevailing conditions.

Rather than reduce volume of output through regulation of exports, some producers favored greater efforts to expand consumption and the elimination of small uneconomic estates. Over a long period of years yields have been increasing and, while wages have risen steeply, unit costs have tended to decline owing to technical improvements. Yields are apparently susceptible to additional improvement, but the trend in labor costs seems unlikely to be reversed. Higher costs invite further technical developments and mechanization, but these are tied in with volume of output. If larger crops are needed to spread the higher costs over a greater number of units, and the industry is already fearful of a return to surpluses and the need for regulation, the only solution would seem to be much greater consumption⁴⁵ and the retirement of obsolete or inefficient productive units.

Prospect of surplus supplies.—Late in 1948, officials of the International Tea Market Expansion Board foresaw the time “in the not-too-distant future” when the world would have more tea than it wanted. They recognized that the tremendous wartime increase in output of India and Ceylon, together with exports from nonregulated countries, was short of prewar world absorption by only about 9 million pounds. By late 1950, the same group forecast 1951 supplies at 1,190 *vs.* prospective absorption at 1,156 million pounds, or an indicated surplus of about 34 million.⁴⁶ As noted earlier, the situation during these years was artificial, and could be made one thing or another, depending upon British policies under the bulk-buying arrangement.

Trade sources, in their forecasts of the supply outlook, generally concluded that Indonesia was the key to the situation. Exports from Java and Sumatra were expected to increase, but questions of how soon and how much remained matters of speculation. Japanese destruction of equipment was greater than estimated shortly after the war, and political disturbances in the postwar period lasted longer

⁴⁵ Potentialities for the expansion of world tea consumption are examined in Chapter 17.

⁴⁶ TIS, *International Bulletin*, October 1950.

than anticipated. It was demonstrated, however, that rehabilitation of neglected tea bushes did not require nearly as long as the two years estimated before the end of the war.

Toward the close of the 1940 decade it was not generally expected that India, Pakistan, and Ceylon would show much additional increase in output within the few years ahead. Record crops of the war and postwar period were not likely to be greatly exceeded. The modest liberalization of planting restrictions in connection with the 1948-50 Interim Producers' Agreement would not show up for several years and was not expected to amount to much. Meanwhile, any increase in production from new planting was likely to be offset by the need for resting overworked tea bushes, and the necessity for finer plucking to improve quality as world supplies equaled or exceeded demand and competition became keener.

Even a small flow of exports from Java and Sumatra might have a pronounced effect on world tea prices, just as the British bulk purchasing undoubtedly had. As already noted, this prospect loomed large in the contract negotiations of the late 1940's when the Ministry of Food opposed long-term arrangements. Some forecasts anticipated a recovery in Indonesian production (around the 30-million-pound level in 1948) to more than 100 million pounds within five years.

Chinese, Japanese, and Formosan shipments to the world tea-consuming markets were not expected to expand quickly; most of the reduced local production would probably be consumed at home. Japanese prospects, however, were considered more favorable than the others. The feeling of a few years earlier that Chinese exports might recover sufficiently to make it necessary to include China in any future regulation scheme had largely disappeared.

Consumption was generally expected to be maintained or increased in the principal tea-drinking countries upon the removal of such restrictions as rationing. Promotional efforts were planned for the United States market where per capita tea consumption was declining gradually but where the demand for iced tea seemed to be growing. The U.S.S.R. remained an unknown quantity, but barter deals with India brought imports, at least temporarily, to a level roughly half that of prewar. Absorption of tea in markets of Iran, Iraq, and Egypt was expected to continue upward.

In such an important market as the United Kingdom, however, absorption was not likely to return immediately to the prewar level, even without rationing. Tea consumers had become accustomed to a weaker brew, securing a greater number of cups from the same quan-

tity of dry tea. And in India the consumption outlook deteriorated toward the end of the decade. Wages no longer rose faster than tea prices, which had permitted many to buy for the first time despite the high level of prices. The season of 1948 demonstrated that the Indian market could not be used as a profitable dumping ground for "appallingly sub-standard teas at any price."⁴⁷

The general consumption outlook was not sufficiently bright to expect a rapid expansion in absorption. A tea surplus problem loomed ahead. A return to regulation of exports was generally contemplated, yet if drastic regulation should be required within a few years, problems of costs and profits would be accentuated even though this type of control helped to maintain prices.⁴⁸

Politics in producing countries.—At the opening of the 1950 decade, many and varied strictly market factors clouded the near-term tea outlook, but these uncertainties are always present in some degree and are likely to be temporary. Because the tea industry and trade had not as yet fully overcome wartime and early postwar influences, additional adjustments were ahead. These "market situation" considerations should not, however, be confused with longer-term elements which seem likely to be significant in the years ahead.

World War II left perhaps its most lasting mark on the tea industry in the producing countries. The consequences of changes, both political and economic, are likely to be felt for many years, and the problems generated cannot as yet be fully described, let alone appraised. In short, conditions thought conducive to the continued development of the commercial tea industry by Western interests have apparently deteriorated, and the more pessimistically inclined feel that they no longer exist in some of the important producing countries.

When the Indian subcontinent and Ceylon achieved self-government, the British were faced with new problems in the administration of the tea industry. Discouragement (or profit possibilities) caused some companies to convert their capital from sterling to rupees, some sold to local interests, and others sought new opportunities in places like East Africa, especially Kenya and Nyasaland. The intent of India and Ceylon to replace Mincing Lane through their own auctions, the imposition of heavy taxes by the new governments, the constantly rising costs of production—all were disturbing and were reflected in the valuation investors placed on tea shares.

⁴⁷ J. Thomas & Co., Ltd., *Annual Report, Season 1948-49* . . . , p. 13.

⁴⁸ Consideration of regulation problems, potentialities, and prospects has been reserved for Chapter 18.

Conditions in Indonesia were even less reassuring during the early postwar period. Very little inducement was offered for reinvestment. Much plant modernization was needed in all of the black-tea countries but was seriously discouraged by uncertainties, high costs, and equipment shortages. Although new interest was generated in labor-saving techniques and devices, economies that might offset to some degree the rise in wages were not an immediate solution of a problem which seemed destined to become a long-term one.

Managers of British-owned estates seem to have encountered the greatest difficulties in trying to maintain efficient operations. Labor was a problem under the new conditions, the meaning of "freedom" being as yet little understood by garden workers. Some troubles would prove temporary, but the prospect of being obliged to reduce output or close down uneconomic estates, with all the resulting complications, was not anticipated with equanimity.

In the principal producing countries the problems of costs, taxation, and methods of sale were interrelated, but with political factors having a dominance unknown in prewar years. Local governments were anxious to share in the prosperity of the tea industry, and in a few cases nationalization was advocated.⁴⁹ After the rash of currency devaluations in the fall of 1949, following the British lead with sterling, additional (perhaps temporary) uncertainties were introduced. Pakistan, for example, did not devalue as did India and Ceylon, hence her 30-million-pound tea surplus became relatively more expensive and (it was thought) probably priced too high for another Ministry of Food contract.⁵⁰

Although it could be reasoned that a lightening of the tax load on the tea industry would help reduce costs if only local governments saw things in the proper light, the trend of the times gave no great expectation of relief from this direction. Export duties, cesses, and other taxes tended to increase. Pressures on the cost structure of the tea industry and ways and means of coping with the changed con-

⁴⁹ In Ceylon, the Communist party agitation for nationalization of rubber and tea plantations (mostly British owned) seemed not to be making much progress because the Ceylonese were "too well-fed." *New York Times*, Oct. 1, 1949, p. 8.

⁵⁰ Early effects of devaluation were to increase demand for quality teas, especially from the United States, but it was not expected that the over-all effects on the world's tea trade would be important. Some 90 percent of total world black-tea exports in 1948 were from producing countries devaluing approximately the same amount; and of these exports over three-quarters were made to consuming countries whose currencies were similarly devalued. Dollar earnings from exports to the United States and Canada might decrease, but a counterbalancing influence was the tendency for prices to rise and for volume to expand.

ditions of the postwar period are considered in more detail in Chapter 18.

Despite the desire of India and Ceylon to shift the center of the tea industry and trade to their own countries, and various steps taken to force such a change, it seemed more likely that the position of London would be restored after the reopening of auctions in 1951 and the logical, hoped-for elimination of other government controls subsequently. But other important questions remained for the future. If new members of the Commonwealth were to follow the lead of Britain, the time might come when government officials and politicians could see no other way of solving their problems than by more intervention in the affairs of established industry.

PART III
COCOA

CHAPTER 12

RISE OF THE MODERN COCOA ECONOMY

Of the three nonalcoholic beverages of world importance, only cocoa possesses values in nutrition and has nonbeverage or food uses of far-reaching scope. As a beverage it is a poor third to tea and coffee in popularity. The cocoa bean, extracted from the pod of the cocoa tree which grows only in tropical countries, is the source not only of the beverages cocoa and chocolate, but of the necessary raw material for a great variety of chocolate-flavored products used in the food rather than the beverage industries. Cocoa and chocolate are complementary products, although this has not always been so, and the layman is still sometimes confused as to the distinctions that need to be made.

The raw cocoa bean of commerce has a high fat content. This partially explains the food value of products derived from it, and also is the key to differences between cocoa and chocolate. Cocoa powder, the main ingredient of the beverage cocoa, has this fat, called "cocoa butter," partially removed. Chocolate products, on the other hand, are always mixed with ingredients like sugar and milk, plus amounts of cocoa butter. Despite the long history of the products known as cocoa and chocolate, both the beverage cocoa and eating chocolate are of relatively recent origin. It was not until shortly after the first quarter of the last century that processes for manipulating the fat content of the bean were introduced and ultimately led to the present-day distinctions between cocoa and chocolate.

After raw cocoa beans have been cleaned and roasted, a shelling process breaks them into particles known as *cocoa nibs* from which cocoa powder and drinking or eating chocolate are derived, according to further processing. *Cocoa powder* is simply the unsweetened cocoa nib which has been finely ground after removal of part of its natural fat. *Sweet drinking chocolate* is the cocoa nib ground, then mixed with sugar and refined; while *eating chocolate* is a similar type of mixture in which the proportion of cocoa butter has been increased and flavoring ingredients added. *Unsweetened chocolate*, commonly called *baking chocolate*, is simply the ground nib molded into bars.

Cocoa butter, chocolate and chocolate syrups, cocoa powder, and

prepared cocoa mixes are used widely in the confectionery, ice cream, baking, dairy, and soft-drink industries to produce a great variety of foods and beverages. In addition, cocoa butter has for many years had a significant nonfood use as a base for cosmetics and various pharmaceutical preparations.

The word *cocoa*, as used in this study, applies to the tree and its fruit as well as the processed or manufactured product made from the bean of the fruit. This usage follows the British custom and avoids a certain amount of confusion arising from the use of *cacao* for the bean and the tree, and *cocoa* for the powder and the beverage. Admittedly distinctions are sometimes desirable, but differences in spelling alone are not enough when *cocoa* and *cacao* are now frequently pronounced the same in English, especially in commercial usage.¹ Only by an accident of language has cocoa come to be associated with one among several products of the cocoa bean. The beverage chocolate came first historically, and eating chocolate is now of chief importance, yet to describe the tree as a "chocolate tree," as is sometimes done, is open to obvious objections.

EVOLUTION OF SUPPLY SOURCES

Cocoa was grown and used as a food-drink and as a medium of exchange in the Middle Americas long before the European discoveries,² and has been used in Europe as a beverage, sweetmeat, and

¹ "When the Spaniards brought the cocoa bean to Europe, they called it *Cacao*, from part of the Aztec word *cacauatl*. In England the word was originally pronounced with the accent on the second vowel, and the spelling varied for some time between *cacao*, *cocoa*, and *cocoa*. The accepted English form is now *Cocoa*, but as the accent has been thrown back, there is a possible confusion with *coconut*, especially as the latter is occasionally mis-spelt as *cocoanut*."

"In consequence, there has recently been a tendency to employ two forms: one, the botanical and continental form *cacao*, for the bean, and the other, the normal English form, *cocoa*, for the powder and the beverage. But the confusion, such as it is, lies in the pronunciation, and even those who write *cacao* speak of *cocoa* whether they are referring either to the bean or to the beverage . . . As long as the word is pronounced *cocoa*, as it is in English, to write *cacao* and to speak of *cocoa* is merely to add one more confusion to English orthography . . ." Great Britain, Imperial Economic Committee, *Cocoa* (Twenty-second Report, 1932), p. 91.

In the Western Hemisphere *cacao* is the most widely accepted term and the research center at Turrialba apparently prefers the distinctions mentioned above, plus different pronunciations. In West Africa *cocoa* is used consistently, yet the center of scientific investigation is the West African Cacao Research Institute, *cacao* being pronounced *cocoa* by official decree. Inter-American Institute of Agricultural Sciences, *Cacao Information Bulletin* (Turrialba, Costa Rica), October 1949.

² The Conquistadores found it so highly regarded that its use was restricted to the ruling classes and as a monetary unit. The use of cocoa butter as a cosmetic

confection since then. Cultivation has extended to other parts of the tropical world only within the past century or so, but the shifts that have occurred in sources of supply have been as spectacular as with rubber and coffee.

The cocoa industry did not achieve much importance until the latter half of the 19th century, and by far the greatest growth has occurred during the past 50 years. At the turn of the century, world exports of raw cocoa amounted to slightly less than 100,000 long tons. Before World War I they had grown to around 250,000 tons, and by 1931 they had doubled to over 500,000 tons. Just before World War II production reached a peak (in 1938/39) and exports in 1939 rose to 736,000 tons, more than a sevenfold increase in 40 years.

After the international trade in cocoa became important, the crop was introduced into a number of new areas. As output grew strikingly in the new producing regions, it tended to decline in older established areas. The Gold Coast, for example, still the world's largest producer despite smaller production in recent years, exported only some 540 tons in 1900 vs. 281,000 tons in 1939. On the other hand, Ecuador, once the leading producer, exported only 15,000 tons in that year compared with an average of some 37,000 tons in pre-World War I years.

Although originally a product of tropical America, cocoa is now grown chiefly in West Africa.³ Like rubber, another crop indigenous to the American tropics, cocoa was transplanted to another hemisphere and to an environment more conducive to commercial exploitation. Colonial Africa has become the main source of world cocoa supplies only within the past half-century. Until around 1900 tropical America produced more than four-fifths of the world crop, but in the prewar period, 1935-39, the Western Hemisphere grew only 30 percent of the total. Today the percentage is roughly the same.

A summary view of shifts in supply sources during the present century, as well as in markets, is provided by the accompanying tabu-

apparently was also known at this time among Central American women. Spain and Portugal were soon to experiment with the New World product, and as early as 1550 chocolate factories of "considerable size" existed in Lisbon, Genoa, Turin, Bayonne, and Marseille. The first establishment in what is now the United States was not founded until 1765.

³ Cocoa has been a commodity in world trade for some three and one-half centuries, starting with exports from Mexico to Spain. Then Venezuela became the principal source of supplies and held this position for around a century. About 1850 Ecuador became the chief exporter. It retained its leadership until just before World War I, when Brazil forged ahead. About a decade later West Africa emerged the leader and has dominated the world export trade ever since.

lation in which the data are expressed in terms of percentages of world totals.

Exports	1895	1909-13	1926-30	1935-39	1940-44	1945-49
South America	86	38	21	22	25	22
Middle America		24	13	8	8	7
Africa	10	35	64	69	66	70
Asia and Oceania	4	3	2	1	1	1
Imports						
Continental Europe		58	44	40	15	24
United States		26	38	39	48	45
United Kingdom		12	12	16	26	19
Canada		1	2	2	4	3
All other		3	5	3	7	9

Obviously these rough approximations merely highlight long-term trends and obscure many details. The migration of tropical crops from one hemisphere to the other is an old story, as is the shift in principal consuming markets from Western Europe to North America. Perhaps, in view of wartime developments in the world cocoa situation and difficulties of supply experienced with other tropical products, especially those grown in the Southeast Asiatic region, the center of cocoa production may, in future years, tend to return to the Western Hemisphere.

Within each broad geographic region of cocoa production noteworthy changes and counterbalancing influences have, of course, been present. In South America, for example, the decline in Ecuadorian production has been more than offset by the rise in Brazilian production.⁴ In Africa the early postwar decline in Gold Coast cocoa production was partially offset by increases in smaller neighboring areas.

The wartime and early postwar drop in cocoa consumption in Continental Europe, however, has been only partially offset by enlarged utilization in other important markets such as the United Kingdom. The United States and Canada have been taking an increasingly large proportion of world production. Undoubtedly, aggregate consumption during recent years would have been even larger had world supplies been more abundant.

In addition to many changes in the ranking of cocoa-producing countries within the Americas, and the shift in the center of produc-

⁴ For the historical development and present geographical distribution of cocoa in South America, see Ivar Erneholm, *Cacao Production of South America* (Gothenburg, 1948).

tion to West Africa, there has also been a notable change in the quality composition of world supplies. (As with coffee and tea, there are marked differences in the flavor of cocoa grown in different parts of the world.) When the Caribbean area and South American producers enjoyed leadership, the proportion of fine-quality blending cocoa was much greater in relation to the output of ordinary cocoas.

WORLD COCOA PRODUCTION AND EXPORTS

In early postwar years, aggregate output of cocoa beans from all sources was at an annual rate some 10–12 percent below the immediate prewar level. The West African contribution to world supplies was smaller, yet still amounted to two-thirds of the total. British West Africa alone accounted for about half of world production, another 18 percent came from Brazil, about 14 percent from other Latin-American countries, about 11 percent from French Africa, and the remainder mainly from Spanish Guiana, Portuguese Africa, the Belgian Congo, Ceylon, and certain South Pacific Islands.

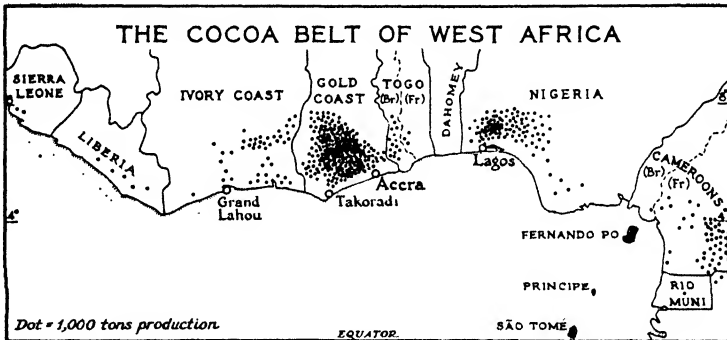
TABLE 15.—WORLD COCOA PRODUCTION, PREWAR AND POSTWAR*

Continents and countries	Thousand metric tons		Percentage of world total	
	1934/35– 1938/39	1944/45– 1948/49	1934/35– 1938/39	1944/45– 1948/49
World total	740.1	666.6	100	100
Africa	486.8	437.9	66	66
Gold Coast (and British Togo)	282.6	230.6	38	35
Nigeria (and British Cameroons)	95.4	102.2	13	15
Ivory Coast	49.9	36.2	7	5
French Cameroons (and Eq. Africa)	25.5	39.8	3	6
Other Africa	33.4	29.1	5	5
South America	181.0	169.6	24	25
Brazil	129.9	121.4	17	18
Ecuador	20.0	17.2	3	2
Venezuela	16.5	17.8	2	3
Other South America	14.6	13.2	2	2
Middle America	63.4	52.8	9	8
Dominican Republic	23.4	27.5	3	4
Other Middle America	40.0	25.3	6	4
Asia and Oceania	8.9	6.3	1	1

* Data from Appendix Table IX. Compare with Table 19 (page 377) showing estimates of potential production during the early 1950's.

Cocoa trees are found quite commonly on the West African coast from Sierra Leone to Angola. Most of this area is within 10 degrees of the Equator (Map 9). Main commercial production is centered in the Gold Coast and Nigeria, but the Ivory Coast and the French Camerouns are also producers of importance. The forest region of heavy rainfall covers perhaps 1,000 miles from the western tip tip to the east and south. The small islands in the Gulf of Guinea, especially Fernando Po where cocoa is said to have been first introduced, are still names to be reckoned with in the cocoa trade, although their output is small in comparison with the leading producers.

MAP 9



Approximately 95 percent of Brazilian cocoa production and practically all cocoa exports originate in the state of Bahia. Output has more than doubled during the past two decades, although acreage has apparently increased only moderately.⁵ The cocoa belt, centering on the port of Ilhéus, parallels the coast for some 200 miles north and south and extends some 50–100 miles inland (Map 10).

The "Big Three" cocoa producers (the Gold Coast, Brazil, and Nigeria) together account for about 70 percent of world cocoa exports.⁶ All have marketing-control systems. The cocoa crop of Brit-

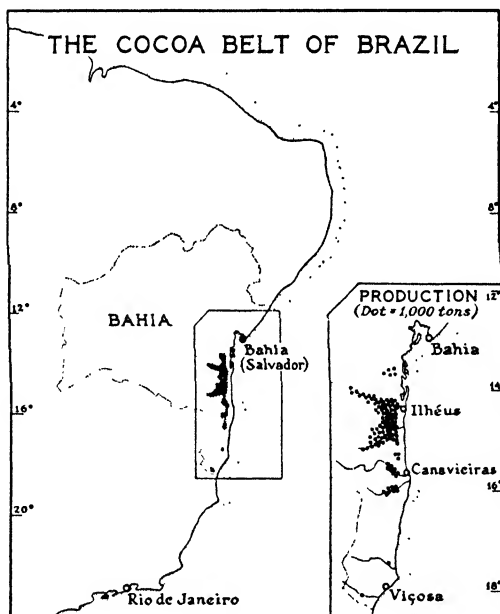
⁵ Data on the area under cocoa in the world are generally quite unsatisfactory and of limited value. Estimates of the number of trees are rough approximations and, for several reasons brought out in the following chapter, the relationship to acreage can be misleading.

⁶ Their importance in exports is somewhat higher than in production because a number of producing countries, especially in Latin America, use most of the cocoa they grow and only occasionally have a surplus available for export. For a general view of the direction and relative volume of the international cocoa trade during postwar years, see Map 11 in Chapter 14.

ish West Africa was marketed through the West African Produce Control Board from 1939 to 1947, when separate marketing boards for the Gold Coast and Nigeria were set up. The Cocoa Institute in Brazil had monopoly control of marketing during the war years and until 1946. Since then control has been partial.

Table 16 is designed to suggest trends in cocoa exports from the principal producing countries over the past two decades. Brazil, Nigeria, the French Cameroons, and the Dominican Republic are the chief countries tending to show both an absolute and relative gain in the importance of cocoa exports over the period. The record in most cases is quite irregular. In the past decade the Ivory Coast seems

MAP 10



also to have moved ahead, although not to the level of exports recorded immediately before the war. The Gold Coast and the various other groups of countries listed in the table have rather consistently lost ground, even though some small producers within the groups have gained. Ecuador, Venezuela, and Trinidad are grouped in order to provide some measure of trends in exports of "fine" cocoas, discussed in the following section.

TABLE 16.—TREND IN COCOA EXPORTS OF PRINCIPAL PRODUCING COUNTRIES, 1930-49*

Area	Thousand metric tons				Percentage of total			
	1930-34 average	1935-39 average	1940-44 average	1945-49 average	1930-34 average	1935-39 average	1940-44 average	1945-49 average
Gold Coast ^b	230.6	276.4	194.5	217.8	41.4	39.2	36.1	35.9
Brazil	88.1	119.7	105.7	103.4	15.8	17.0	19.6	17.0
Nigeria ^b	64.0	98.1	83.7	102.0	11.5	13.9	15.5	16.8
French Cameroons	14.4	26.5	25.5	38.9	2.6	3.8	4.7	6.4
Ivory Coast ^c	29.2	49.9	26.4	36.1	5.2	7.1	4.9	5.9
Dominican Republic	21.3	24.5	22.7	23.9	3.8	3.5	4.2	3.9
Ecuador, Venezuela, Trinidad, and Tobago	52.9	50.2	35.1	37.3	9.5	7.1	6.5	6.1
Other Africa	29.7	32.6	24.3	27.2 ^d	5.3	4.6	4.5	4.5
Other Americas	19.0	19.3	14.8	15.3 ^d	3.4	2.7	2.7	2.5
Asia and Oceania	8.2	7.9	6.7	5.4 ^d	1.5	1.1	1.2	0.9
Total	557.4	705.3	539.4	607.5 ^d	100.0	100.0	100.0	100.0

* Data from Appendix Table X.

^b Includes British Mandated Togoland.^c Includes British Mandated Cameroons.^d Includes Dahomey.^e Estimate.

QUALITY STANDARDS FOR WORLD TRADE

One of the most significant developments in world cocoa production over recent decades has been the sharp drop in the proportion of high-grade output. (The effects of this development on the quality of manufactured products and manufacturers' adjustments to the changing character of their raw material supply are discussed in Chapter 14.) For many years concern has been expressed in cocoa circles that the fine-flavor types might become extinct. It is now "extremely difficult to find the original types in countries such as Nicaragua, Costa Rica and San Salvador, etc., and South America was probably the last area where any pure strains of Criollo could be found."⁷ Probably not more than 10 percent of world cocoa production could be classed as fine today whereas at the turn of the century about 65 percent could be so classed.⁸ Production of fine cocoa remained stationary or declined over the decades while ordinary cocoas accounted for all of the increase in world output.

During the great depression of the 1930's fine cocoas, like high-quality coffees, teas, and many other products, declined less in price than ordinary grades. Certain British and Brazilian interests, among others, observing this phenomenon, advocated increased attention to growing the finer cocoas despite the difficulties of production.⁹ But the low level of prices during most of the 1930's provided little incentive for concentrating on the finer grades, especially since manufacturers apparently failed to encourage such development by a willingness to pay premiums for the best quality.

A number of factors account for the greatly increased production of ordinary cocoas at the expense of the fine grades.

Among these are the heavier demands for cocoa and chocolate products in consuming countries, which exceeded the supplies available in the "fine" producing countries; increased competition with other enterprises in these countries, such as the petroleum and coffee industries in Venezuela, which increased production costs for cacao, and placed that industry in a less favorable position; the ravages of plant diseases, such as witchbroom and pod rot, which became especially noticeable in the "fine" producing countries of this [West-

⁷ Great Britain, Colonial Office, *Report and Proceedings of the Cocoa Research Conference . . . , May-June 1945* (*Colonial 192*, 1945), p. 21 (hereafter cited as *Colonial 192*).

⁸ Classed as fine for purposes of this computation are cocoas from Venezuela, Ecuador, Costa Rica, Surinam, British West Indies, Ceylon, and Java.

⁹ The British concern over the decline in fine cocoas at this time may well have been due partly to the colonial trade situation. Although the flavor grades are used much more freely in the United Kingdom than in the United States, apparently the European demand is the most significant.

ern] hemisphere; and the gradual shift, especially in the United States, from "fancy" products to medium-grade chocolate goods, requiring large quantities of cacao butter, for which the "ordinary" grades of beans are the usual source.¹⁰

Over the years the quality standards for cocoa have deteriorated, and this trend seems destined to continue. In absolute terms the fine grades were holding their own in the early 1930's when much attention was given to the threatened extinction of the types that were for so long the basis of the chocolate industry. In more recent years manufacturers seem not to be overly alarmed at the relative scarcity of fine-flavor grades; they have learned to use ordinary cocoas in processes that minimize the role of fine grades for blending. Furthermore, in world-wide efforts to promote cocoa production during recent years of shortage, emphasis has been placed on quantity of output rather than quality.

Not only are there fewer flavor-grade cocoas available today, but there was a tendency after the war for the basic quality of bulk grades to deteriorate. Prior to World War II most of the cocoa used by British and European manufacturers was good-quality Grade A, but during the period of wartime controls there was little incentive for growers to produce the best quality. For four years, from 1942 on, manufacturers paid the same price for all grades of West African cocoa. In recent years, however, the trend seems to have been reversed: pressure from manufacturers and greater competition among suppliers have resulted in marked improvement, at least in some countries.

CONSUMPTION, STOCKS, AND PRICES

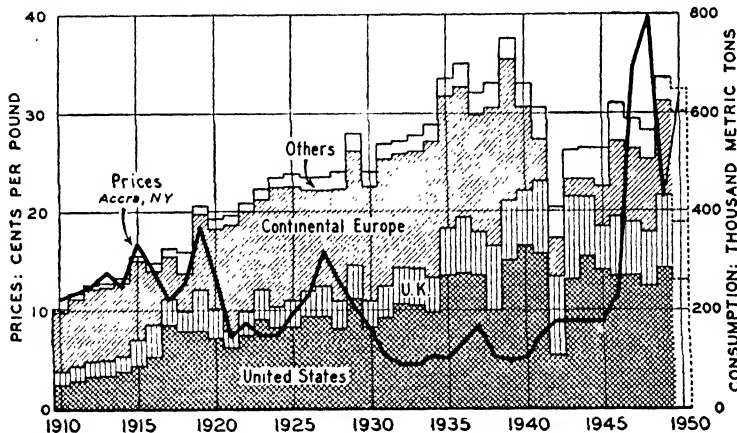
World consumption of cocoa has been growing more or less steadily for many decades. Although production seemed to exceed consumption somewhat during the 1930's, excessive stocks did not accumulate to plague the industry as, for example, with coffee during the same decade. The growth in demand accompanied a gradually falling price level for cocoa beans over several decades, a situation resulting partly from the rising importance of low-cost African production and partly from developments in manufacturing methods permitting a greater use of ordinary grades.

No genuine shortage in cocoa supplies occurred during the present century until production began to decline about the time World

¹⁰ Pan-American Union, *Documentary Material on Cacao . . . , Part I* (Washington, D.C., May 1947), p. 3.

War II started. A high price level during and immediately after World War I was followed by irregular decline to record lows in 1932-33 when the Accra (Gold Coast) grade, commonly quoted on the New York market, averaged only 4.4 cents per pound (Chart 11). After some recovery and a flare-up in 1937 to 8.4 cents, average wholesale cocoa prices for ordinary grades remained around 5 cents a pound at the outbreak of the war. By late 1947 the same grades were selling in New York above 50 cents a pound. They averaged 39.8 cents in 1948, but were down to the 19-cent level in mid-1949, only to rise again to the 40-cent level after the outbreak of war in Korea in 1950 (see Chart 15 in Chapter 16).

CHART 11.—WORLD COCOA BEAN CONSUMPTION AND PRICES, 1910-50*



* Data from sources indicated in Appendix Tables XI and XII.

Although demand for and supply of cocoa have been in fairly good balance until recent years, relatively small changes on either side of the equation have resulted in sizable, if temporary, price movements. Over a long period of years cocoa prices have fluctuated over an extremely wide range, even though for many years average annual prices seemed relatively stable. Before the war the size of the Gold Coast crop was a major market influence. At times wildly speculative activity occurred in the markets based on "prospects" which were variously reported from interested sources. Today market intelligence is not greatly improved, but many more traders have had some first-hand experience in West Africa. In their quest for facts about the disease threat to their source of supply, many have made their

own investigations in recent years. Knowledge gained seems to have had some tendency to produce better-informed buying, lessening the amount of utterly uninformed speculative activity.

Before the war, world stocks of cocoa were apparently quite constant at around 50 to 55 percent of consumption, while the variable annual production was generally absorbed. But "the sale of virtually the entire cocoa crop each year has been effected *at a price*: and the wide periodical variations in price to which cocoa is subject constitute one of the gravest economic problems of the greatest producer—the Gold Coast."¹¹ Chart 12 illustrates in a general way (because average annual prices are used) the cyclical swings in cocoa prices since 1926/27. The relationship between farmers' prices and world market prices for cocoa has actually fluctuated more than indicated by the lower portion of the chart. The period since 1940 has been one of controlled marketing, yet it cannot be characterized as one of much stability.

The low level of cocoa prices during the 1930's encouraged the use of chocolate products, especially in the United States, the United Kingdom, and Western Europe. Probably because of low prices, the world depression of the early 1930's failed to check the expansion of exports and consumption. On the other hand, the same factors that tended to stimulate cocoa consumption during the decade before World War II tended also to discourage production.

The postwar world cocoa shortage and the fantastic heights to which prices rose may be attributed in large part to low cocoa prices during most of the 1930's. Growers, finding cocoa insufficiently remunerative in many areas, failed to extend their planting or replace existing trees that had become unproductive. Stands were neglected and diseases were permitted to spread unchecked. In time these conditions were bound to be reflected in world output, and the deficiency to be accentuated because of the greater demand that had been created meanwhile in the principal consuming markets.

The natural world markets for cocoa beans and products derived therefrom are in the cool climates of North America and Europe. Fatty foods tend to find more ready acceptance here than in the warmer areas of the world. Furthermore, until recently, chocolate products were generally quite perishable in tropical regions.

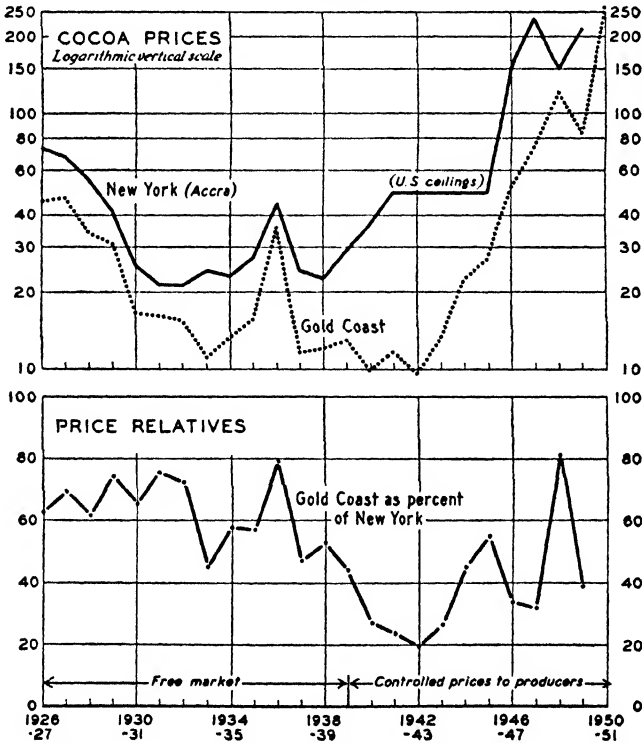
During the interwar period around four-fifths of world imports of cocoa were taken by five countries: the United States, the United

¹¹ United Africa Company, Ltd., *Statistical and Economic Review* (London, September 1948), p. 26.

Kingdom, Germany, the Netherlands, and France. Another 15 percent of the total was accounted for by five other countries: Czechoslovakia, Switzerland, Belgium, Sweden, and Canada. Thus, the market for cocoa was highly concentrated, 10 countries accounting for 95 percent of world imports, leaving only 5 percent of the total for all other importers.

World War II created severe dislocations in the world cocoa trade but left markets about as highly concentrated as ever. Within the main group of importers, however, changes were important, and outside this group countries like Australia and Spain increased their takings sufficiently to rank with the prewar leaders. Substantially increased imports were recorded for Canada, but greatly reduced

CHART 12.—PRODUCER (GOLD COAST) AND “WORLD” (NEW YORK) COCOA PRICE RELATIONSHIPS, 1926/27 TO 1949/50*
(Pounds sterling per long ton)



* From official data published in *Economist* (Nov. 8, 1947), p. 769, and *Plantation Crops* (1950), p. 54.

takings were shown for Germany and the Netherlands. France was one European country to show substantially increased takings over prewar by the close of the 1940 decade (see Appendix Table XI).

Potential demand in all the major European consuming countries remained high, but various difficulties prevented it from becoming fully effective for several years. Unlike the United States, where the number of products competing with chocolate is much greater, the price of chocolate goods in Europe seemed, temporarily at least, to be less of a factor in cocoa consumption. For this reason, some observers anticipated that future growth in cocoa demand would tend to come more from Europe than from the United States.

About four-fifths of the annual world cocoa crop is harvested and sent to market from September to March and the other one-fifth from April to September. The concentration of offerings creates a regular seasonal movement in stocks, which tend to be at peak levels in December and January and at lowest levels in August and September just before the new main crop begins to be harvested and marketed. Because cocoa deteriorates rapidly in tropical climates and storage facilities are generally inadequate in producing countries, the crop passes rather quickly from producers' hands to buyers' and manufacturers' in consuming countries.

In the period immediately preceding World War II, stocks of cocoa beans held in consuming countries were apparently fairly large, having been built up at the low price levels of 1938 and 1939.¹² At the end of the war, stocks had been reduced to minimum working levels in all consuming countries with the possible exception of the United Kingdom. Meanwhile production had fallen some 20 percent. High postwar demand combined with the trade's need for rebuilding inventories created an unbalance in supply-demand relationships that resulted in an enormous price rise and highly erratic price fluctuations.

Clearly the postwar position of cocoa was unstable. Despite high purchasing power in the United States, consumer resistance to high prices of chocolate products was apparent. Yet, in a general period of inflation, pressure from the consumer's side was spasmodic. How-

¹² Unofficial estimates (*Gordian*) of world cocoa stocks during the interwar period ranged between 268,000 and 370,000 metric tons, or 49-71 percent of the previous season's consumption. Manufacturers commonly held 6-12 months' requirements, and at the outbreak of the war some of the largest had their needs covered for two years. In the recent period of supply shortage, stocks, regardless of where or by whom held, have not been much of a market factor, and comprehensive estimates of their size have been lacking.

ever, a mild recession would be reflected promptly in the price of cocoa.

In the late 1940's New York prices of cocoa beans—and New York prices tend to set world prices—were more than ten times the lowest annual price of the 1930's and some five times the highest. Short world supplies of cocoa continued through 1948 and 1949, and the prospect seemed to be for several more years of inadequate production. Despite high prices, demand continued strong, especially after quotations receded substantially from 1947–48 peak levels. The gap between output and import requirements was variously calculated at between 100,000 and 200,000 tons in the late 1940's, a large figure in view of prospective crops then estimated around 600,000 tons.¹³ But when the 1948/49 crop turned out to be almost one-sixth larger, there was a tendency in trade circles to raise sights for the future (Chapter 16).

Even in Continental Europe demand for cocoa was greater than might have been expected at the time. Chocolate had tended to become a preferred item in the dietary of Europeans, and cocoa products were in demand, partly because of the general shortage of fats and other foods. The contribution of cocoa "to nutritional needs, to contentment, and to morale" was considered by the government representatives as of the "highest importance."¹⁴

ORGANIZATION OF PRODUCTION AND MARKETING

The economies of several colonial areas remain heavily dependent upon the cocoa trade. Hence some degree of government intervention in production and marketing was more or less inevitable once the industry was confronted with serious troubles. The Gold Coast is the best example of a country where cocoa still constitutes nearly half the entire export trade by value, and is easily the main source of income of the greatest number of people.

¹³ Such production, about 85 percent of the prewar level, was sufficient to meet only about 70 percent of the then current demand, as measured by requirements submitted to the IEFEC by importing countries. See *Report of the International Emergency Food Committee for the Council of FAO at Its Second Session* (Washington, D.C., March 1948), pp. 30–32. The first estimate of the IEFEC of exportable supplies for the crop year Oct. 1, 1947 to Sept. 30, 1948 was 644,450 long tons (93 percent of prewar), but the Jan. 1, 1948 estimate was reduced to 591,550 tons (85 percent), and the final estimate was 573,000 tons. The IEFEC used 690,000 as a prewar base, and its estimates of exportable supplies between 1942/43 and 1948/49 (when allocations were discontinued) varied between 76 and 91 percent of prewar. Only its revised (and raised) estimate for 1948/49 of 702,350 tons exceeded the prewar average.

¹⁴ *Ibid.*, p. 32.

Over one-third of the trade of the French Cameroons is in cocoa and over one-fifth of that of Nigeria. In other countries such as Ecuador, Venezuela, and the Dominican Republic, cocoa is much less important in the economy but ranks high among agricultural exports. Even in Brazil, cocoa ranks third after coffee and cotton, though it dominates the economy of Bahia.

Type of ownership and size of investment.—Quite unlike the commercial production of coffee and tea, the bulk of the annual cocoa crop is grown on small farms. This is especially true in West Africa where many thousands of native growers are responsible for the production of the base-grade cocoas which dominate the world cocoa trade. European plantations are the exception, accounting for only a small portion of total output. In fact, in British West Africa Europeans are not normally allowed to own land; hence the total absence of plantations there.

In contrast with the small cocoa farms (2–5 acres) typical of West Africa, cocoa growing is considered a plantation industry in Brazil, most of the tracts being 100 acres or more. Likewise in Ecuador, Venezuela, and much of the Caribbean area cocoa growing tends to be a plantation industry. Estates are of varying size. A few will contain a million or more trees, but probably the ordinary plantation carries a few hundred thousand trees. Intermixed with so-called plantations are numerous farms of 10 to 25 acres in many of the smaller producing countries.

In general, the ordinary cocoas of commerce (some 90 percent of world production) tend to be grown on numerous small farms, whereas the fine-flavor grades tend to be grown under the plantation system.

Compared with coffee, tea, other tree crops, and tropical crops like sugar, the growing and preparation of cocoa for market involve a relatively small capital investment. This explains why cocoa production can be a small-holder's operation in so many places. Nevertheless, every acre planted is said to require an initial investment of something like \$80–\$100.¹⁵ As of 1948 it was estimated that the cost of planting a cocoa orchard in Central America, and maintaining it until commercial production begins (about the fourth year), would be about \$250–\$300 per acre.¹⁶

¹⁵ This statement undoubtedly needs to be qualified, amplified, and supported—something that the author has been unable to do.

¹⁶ G. F. Bowman, *Cacao Culture* (Turrialba, Costa Rica, mimeographed, Mar. 22, 1948), p. 2.

Selling and buying.—Because cocoa is typically a small-holder's crop, grown mostly in areas not far advanced economically, it is not surprising that orderly methods of marketing have been slow to develop. Only in relatively recent years has progress been made in the leading producing countries toward improving this situation. Such progress as has been made is the result of government intervention, usually inspired by the importance of the cocoa trade in local economies. In the past, financial returns to growers have frequently borne little relationship to world market prices for cocoa, but gyrations in world prices have had important repercussions on peasant farmers and cocoa output. (Some of the special problems of the peasant grower and ideas on meeting them are considered in Chapter 18.)

In any poorly organized marketing system, speculative risks are unusually large, and those willing to assume them have often reaped abnormal rewards at the expense of producers, consumers, or both. Governments have stepped in with marketing schemes in an effort to control and stabilize selling and buying operations, and to eliminate or reduce the evils of speculation. In markets characterized by extremely wide price fluctuations, it is difficult to plan production intelligently. Furthermore, when main emphasis is focused on successful trading, whether by intermediary brokers or by farmers, quality and quantity of output tend to be given only secondary consideration.

Typically, the large number of small cocoa producers sell to a relatively small number of buyers or their representatives. At one time the grower was more or less obliged to take whatever price was offered. Then large merchant firms and government agricultural departments began to encourage better preparation of raw cocoa beans. Systems of grading were established, and premiums were paid for properly fermented and dried cocoa. As output expanded, brokers or intermediary middlemen became an important part of the marketing machinery. They tended to gain power and profits because they were not only buyers of cocoa but sellers of merchandise and lenders of money.

Abuses developed under this system, and competition among intermediaries (often agents of the merchant firms) became keen. The next step was agreement among the intermediaries designed to limit competition, fix uniform buying prices, and allocate territories. The typical response of the peasant farmers was to rebel, hold up sales and shipments, or otherwise protest in an effort to strengthen their own position. Governments had to intervene, investigating missions

made recommendations, and marketing controls, forerunners of those in existence today, were instituted under government pressure.¹⁷

The troubles of the 1930's resulted in the quest for marketing-control schemes in all of the principal cocoa-growing countries and some minor ones. Today, the successor organizations are the main factors in the selling of cocoa. On the buying side, machinery was set up to facilitate the distribution of available world supplies. Until mid-1949 methods of selling and buying cocoa were little different from war years when tight controls were established over the trade, but they were quite different from those prevailing prior to the depressed 1930's.

In early postwar years the world cocoa trade was governed in a general way by allocations of the International Emergency Food Council. Marketing in British West Africa continued under government control, operating through two newly formed subsidiaries, the Gold Coast Cocoa Marketing Company, Ltd., and the Nigerian Produce Marketing Company, Ltd. These companies operated by normal selling through United Kingdom merchants and brokers except for their direct sales to the Ministry of Food. All sales of Brazilian cocoa were handled by the Instituto de Cacau da Bahia, working through agents abroad, and French colonial supplies were marketed through the Groupement National d'Achat du Cacao in Paris. Various of the minor producing countries also marketed their crops through government-sponsored or -controlled agencies.

In the late 1940's the United States was the only country completely free from wartime controls. This market, however, "was dominated even before the war by the Hershey Chocolate Corporation which was then 'the largest consumer of cocoa beans in the world . . .'"¹⁸ All purchases for the United Kingdom continued to be made by the Ministry of Food, allocations to manufacturers being at prices fixed quarterly. Bulk-buying methods were also still being employed by Norway, Sweden, Denmark, and the U.S.S.R. All purchases for the Netherlands were made by the government-controlled Cacao Bureau in Amsterdam and then allocated to merchants and brokers. In Canada, Australia, South Africa, Switzerland, and Belgium each manufacturer was given an allocation but was then free to buy when and how he chose.

¹⁷ See Chapter 14 on the marketing of West African cocoa.

¹⁸ P. Ady, "Bulk Purchasing and the Colonial Producer," *Bulletin of the Oxford University Institute of Statistics*, October 1947, IX, 333. From 1942 until 1946, all American cocoa requirements were purchased through the Commodity Credit Corporation and then later through the United States Commercial Corporation.

The concentration of both buyers and sellers was thus greater than before the late 1930's. In 1950, however, both the Dutch and the French organizations were dissolved, and in September the British Minister of Food announced that (as with tea) purchasing of cocoa would revert to private channels at a date to be announced.

DOMINANT FACTORS IN THE COCOA SITUATION

World demand for cocoa and chocolate products continues to grow, as it has for many decades, and there seemed little prospect of a reversal of this trend as the 1950 decade opened. *Effective demand* for cocoa beans and world consumption are, of course, functions of prices and economic conditions. Despite the degree of control over marketing now exercised in the principal producing countries, the prospect for stable *world* cocoa prices was not generally regarded as good. The concentration of buyers and sellers, with their divergent interests and ideas about prices, seemed likely to produce market upheavals as in the past.

The future course of cocoa consumption would thus probably be governed by familiar market phenomena. The smaller crops of recent years and the absence of stocks resulted in curtailed consumption at a time when world demand was probably at record levels. Despite high prices there was ample evidence that greater quantities of cocoa could be absorbed if available. At lower prices (but far above prewar), it appeared certain that sufficient demand would become *effective* to utilize any additional production that could materialize from new planting and improved cultural methods for some years ahead. Production problems therefore were currently more important than consumption problems.

On the production side, the two principal long-term factors in the world cocoa situation seemed to be: (1) the disease problem, especially the threat that "swollen shoot" in West Africa might jeopardize a large proportion of world supplies; and (2) the apparent increasing demand for organized marketing arrangements, especially producer marketing boards. Related to the second trend was the general quest for security and stability—a tendency discouraging to individual enterprise and making the role of government as risk-taker more and more important.

Explanations for the reversal of the long-term upward trend in cocoa production were numerous and varied; of the many factors involved, some observers attached much more importance to one or two than did others. Cocoa trees had grown old—past their peak of

productivity—in many countries. New planting or replacement planting had been, until recently, on a modest scale, undoubtedly because of lack of incentive. Wartime uncertainties, labor shortages, more attractive alternatives for employment, shipping problems, and frozen price levels—all contributed to further neglect and the spread of diseases that had begun with the period of low cocoa prices during the 1930's.

Tree diseases are generally considered the Number One problem of production today, and primarily responsible for the decline in output. Disease problems, however, are concentrated in a few important producing areas, while the decline in output has been general. This led some to consider unfavorable weather conditions, especially for the three years 1945/46 to 1947/48, as perhaps equally important.¹⁹ Others tended to minimize the disease factor and emphasize general "economic influences" as more important, at least in West Africa.²⁰

None of the principal cocoa-growing areas of the world was devastated by the war, but there was a quite general disruption in the pattern of production. Under the double incentive of cocoa prices too high for much growth in demand and the desire to be freed from so-called monopolistic control of supplies, United States manufacturing interests began looking to their supply sources for the first time. They engaged in a vigorous effort to check the spread of diseases and to encourage additional production, especially in the Americas.

Even more feverish efforts were being made by the British to combat a dreaded virus disease of cocoa in West Africa. Much was at stake. Cocoa had become an important dollar earner, had dominated the economy of the Gold Coast, and had become increasingly important in Nigeria. If the spread of "swollen shoot" was not checked, the Gold Coast was thought to be faced with economic ruin. Leadership in world cocoa bean production might shift to a country like Brazil which was unaffected.

Whatever else is done to rehabilitate the world's cocoa-producing

¹⁹ Helen B. Whitmore, "World Cacao-Bean Production and Trade" (U.S. Dept. Agr., OFAR, Foreign Agr. Rpt. 29, August 1948), p. 5. The author referred specifically to British West Africa.

²⁰ See P. Ady, "Trends in Cocoa Production," *Bulletin of the Oxford University Institute of Statistics*, December 1949, XI, 389-404. The author attempted a rather elaborate, but not entirely convincing, statistical demonstration to suggest "that the impact of disease, especially 'swollen shoot,' had been overestimated as compared with other more temporary war-time factors" (p. 399). Admittedly, the various factors are interrelated from a causal standpoint, but shortfalls in production seemed definitely to be associated first with disease and secondarily with weather.

areas or to establish new ones, the dominant factor in the situation for the next few years will undoubtedly be the relative success or failure of efforts to check the spread of diseases. Other factors, such as weather, will continue to influence the size and quality of crops from season to season, but the disease problem is of a longer-term nature. So important, and to some extent controversial, is this aspect of the outlook that more attention is given in the following chapter to some of the problems of cocoa production than might otherwise be justified.

CHAPTER 13

SOME PROBLEMS OF COCOA PRODUCTION

Maintenance of cocoa production on an efficient, permanent basis is now recognized as requiring more scientific knowledge of the crop, its requirements, and treatment than has hitherto been available. This has become increasingly apparent in recent years with the failure to discover easy correctives to the problem of spreading diseases. Even where disease has not been a major problem, the necessity for improving the plant by selection and vegetative propagation is considered essential today.¹ Realization that successful cocoa culture could no longer be left to chance led to a serious stocktaking only a few years ago.²

Changes in the areas of world cocoa production have been attributed to the unusual susceptibility of the crop "to disease and other adverse circumstances."³ After a long period of almost uninterrupted expansion of output without much attention to research, the time finally came when the economic future of the cocoa-growing industry, especially within the British colonial empire, was at stake. The research programs instituted in recent years—inspired primarily by alarms over actual and prospective damage to the industry by the ravages of diseases and pests, but also by high production costs—may well mark a turning point of great future significance.

In their efforts to combat the spread of diseases, scientists have been forced to turn their attention to a re-examination of the cocoa plant and to numerous problems of its cultivation. There remain, however, many matters solely of opinion, and practices vary considerably from one growing region to another. Some of the differences are

¹ G. F. Bowman, chief of the Cacao Center at Turrialba (Costa Rica), summarizes the problem thus: "To maintain a competitive position we must change from exploitation to intensive agriculture and spend more per acre in order to spend less per pound." References to Bowman hereafter (without additional citation) are based on correspondence.

² See especially *Colonial 192*, the first (1945) of a series of reports on annual conferences on cocoa problems held in London under varying auspices.

Recently published, *Cocoa: A Bibliography on the Plant and Its Culture and Primary Processing of the Bean* (compiled by Roberta C. Watrous) is a comprehensive listing of the U.S. Department of Agriculture library holdings of works published during the period 1920 to 1949 (Library List No. 53, October 1950).

³ "The Long Term Objectives of Cocoa Research" in *Colonial 192*, p. 101.

explained by conditions of soil and climate, others by the kind of cocoa grown. On some controversial questions, e.g., planting distances and the use of shade, authoritative answers cannot be obtained except after extensive periods of experimentation under controlled conditions.

THE TREE AND ITS REQUIREMENTS

The cocoa (cacao) tree most commonly found today is of moderate size and is sometimes described as "beautiful." Certainly it presents an unusual appearance by the manner in which it bears its fruit. Pods grow out of the trunk and branches in a peculiar manner which suggests that they must have been artificially attached. In its natural forest environment the cocoa tree may grow to a height of 30–40 feet, but in commercial cultivation it is generally pruned to 15–25 feet. Unshaded trees never grow as high, and some varieties are rather small even under shading. The tree carries fruit in the third or fourth year after planting, bears when about five, and comes into full production usually in the eighth year.

The fruit or pods of the cocoa tree vary in size, shape, and color. They may resemble an elongated cantaloupe or a cucumber, anywhere from 6 to 14 inches long, and from 2 to 5 inches in diameter, and weigh from one-half to two pounds or more. In color the ripe pods range from yellow-orange to dark red-purple shades. Their outer hull is tough and fibrous with longitudinal ribs or elevations, while the inner hull is soft, white, and spongy. The pods are ordinarily broken open with a sharp blow of a machete—revealing the 20–50 seeds which eventually become the cocoa beans of commerce.

Fruit ripens and is harvested intermittently throughout the year, but in most countries there are at least two distinct periods of heavy yield. In West Africa the main harvest accounts for some 90 percent of annual output and the mid- or minor crop for only 10 percent. In Brazil, on the other hand, main and intermediate crops are of roughly equal importance. Yields per tree are highly variable owing to age, variety, environmental conditions, and the presence or absence of diseases. In the West Indies, for example, it is believed that one-quarter of the trees produce three-quarters of the annual crop.

The *average* yield of cured beans obtained per tree is somewhere between one and two pounds, about the same as for coffee. In so far as the scanty statistical information available permits, *average* yields per acre may be estimated at ± 500 pounds of cured beans, but the range is wide. Such an average figure has significance only in relation

to estimates which have been made of potential yields with improved varieties and cultural methods (see discussion in Chapter 18 on optimum life of trees and yields).

Rainfall, temperature, and soil.—Optimum climatic conditions for different types of cocoa are not definitely known, but “of all crops probably none is more susceptible to influence by variations or disturbances of climatic conditions than cocoa.”⁴ Strictly a tropical plant, the tree thrives only in a hot, rainy climate within about 20 degrees of either side of the Equator. It requires an average temperature of at least 75° F., high humidity (between 80 and 90), and 50 or more inches of rain annually. These conditions are met in tropical lowlands, seldom at altitudes above 1,500 feet.

Originally it was thought that cocoa could not be grown with less than about 80 inches of rain, but in parts of Nigeria and the Gold Coast it flourishes with 45 inches.⁵ In many areas soils and other conditions appear favorable to cocoa culture but rainfall is deficient. Scanty rainfall is supplemented by irrigation in some places, but the value of irrigation seems not to be well understood. Various pests and diseases might be avoided with irrigated cocoa because of drier atmospheric conditions. All that is known with certainty about the water requirements of the cocoa tree is that it will die with a very dry season unless the soil is deep or irrigation is practiced as in southwest Mexico and northwest Guatemala.

Similarly, the temperature requirements for cocoa are not definitely fixed much beyond recognition of the fact that the tree does not like low temperatures. Limits of seasonal fluctuations are sometimes placed at 69° to 89° F. One observer states that nowhere is there evidence that cocoa is cultivated where the annual mean temperature falls below 21° C. (69.8° F.), and that commercial cultivation can take place only where the mean minimum daily temperature during the coldest month does not sink below 15° C. (59° F.).⁶ Cocoa seems to thrive at temperatures as high as around 105° F. (humidity 100) in West Africa; in Trinidad the critical temperature for leaf flush is set at 83° F., and this figure is exceeded about three times a year.⁷ Closely related to heat conditions is the question of shading, discussed below.

⁴ H. A. Tempany in *Colonial 192*, p. 42. In the opinion of Bowman cocoa is “not nearly as susceptible to climatic variations as bananas or coffee.”

⁵ One writer places the absolute dry limit at 1,000 mm. (39.37 in.) and the maximum dry period at four months in areas of greater annual rainfall. See Erneholt, *Cacao Production of South America*, pp. 269, 272.

⁶ *Ibid.*, p. 264.

⁷ *Colonial 192*, p. 43.

The cocoa tree seems to prefer a well-drained, loamy soil of some depth, but will grow on many types of soil under favorable climatic conditions. The soils best suited to cocoa cultivation are being intensively studied. The deep, fertile, alluvial soils of tropical river valleys seem especially suitable.

Since cocoa is a forest crop and thrives in its undisturbed natural environment, the experts aim to approximate soil and other conditions obtaining under forest. This is a rather complex problem which involves either reinstating the forest for a while or treating the soil to restore its original fertility. If the litter is not maintained, changes occur in the organic layer that feeds the trees. Gradually the humus is used up and then, in the opinion of some, soil conditions favor the spread of pests and diseases.⁸

Maintenance of soil fertility and conditions favorable to cocoa growing is expensive, and the means of treating the soil are limited. Organic manuring offers promise and is practiced in some places, e.g., Ceylon. In other areas (Nigeria) small-scale experiments in the use of farmyard manure on young cocoa "had not the slightest effect."⁹ Differences in responses to additions of outside organic material are not readily explained.¹⁰ The use of inorganic materials or artificial fertilizers has apparently been quite limited, undoubtedly because of the expense involved.

Shade and shelter.—The cocoa tree is partial not only to deep, well-drained soils but to shade and shelter. Cocoa generally does best under partial shade, but ideas about the appropriate amount vary considerably. In the island of Grenada one of the factors contributing to the long life of some trees (up to 80 years) is thought to be the absence of overhead shade, and in very dry regions where one would expect a greater need for shading, the practice has sometimes been found to be harmful.¹¹

⁸ F. Hardy, Imperial College of Tropical Agriculture, based on observations in the West Indies. *Ibid.*, p. 35. In West Africa, however, O. J. Voelcker, West African Cocoa Research Institute, found no evidence that soil conditions contributed to the spread of swollen shoot. "We have shown that there is no truth in this view whatsoever," in the Cocoa, Chocolate and Confectionery Alliance, Ltd., *Report of Cocoa Conference . . .* (London, Sept. 3–5, 1947), p. 21 (annual conference reports hereafter cited as *Cocoa Conference 1947*, etc.).

⁹ O. J. Voelcker in *Colonial 192*, p. 38.

¹⁰ In some growing regions, e.g., Bahia, the discarded shells of the cocoa pods are thrown around the trees and allowed to disintegrate, thus adding additional organic material. Apparently this practice is not widespread or wholly approved, especially if there is any suspicion that the hulls are from a diseased tree. It is believed that diseases may be spread in this manner.

¹¹ *Ibid.*, pp. 34, 58.

Planters' opinions differ about both the desirability and extent of shading in some places (e.g., in Trinidad, the Ivory Coast), and this seems to be the same general situation noted earlier with coffee and tea. The advocates of no shading tend to believe in close planting as an alternative, but concede that with wide spacing of trees some measure of shading is essential. The whole problem of shade will probably remain unsolved for some years because of the difficulties, expense, and time involved in experimental work.

Initial shading of young seedlings, immediately after transplanting, is usually accomplished by interplanting some kind of legume. Young cocoa trees are shaded temporarily by bananas, cassava (manioc), and similar crops that provide some income while the trees are still unproductive. As the trees grow larger they create their own shade, but generally permanent shading is provided by a variety of taller trees with no commercial importance.¹² Sometimes, however, cocoa is grown along with such crops as rubber, the tall rubber trees serving the double purpose of providing shade for cocoa and a commercial crop.

Leaves from the cocoa trees plus those from the giant overhead shading trees fall to the ground, eventually creating a mat that becomes the principal means of returning plant food to the soil, holding moisture, and facilitating drainage. In the absence of a clear understanding of the role of shade trees, it is conceivable that "the effect may be in the soil and have little to do with sunlight."¹³ One of the "most interesting" aspects of shade is its influence on the problem of weeds.¹⁴

Cocoa also needs protection from strong winds. Upon clearing of the forest and in windswept areas, trees or bushes are usually left standing in clumps where they will provide the necessary protection.

VARIETIES, TYPES, AND COMMERCIAL DESIGNATIONS

Theobroma cacao (Greek for "food for the gods") was the name given the cocoa tree by the Swedish scientist, Linnaeus, early in the 18th century, and remains the scientific name for cocoa trees in general. This is by far the most important of 15 or 20 species of the genus *Theobroma* that have been classified by different authorities.

¹² For a summary of "Cacao Shading Requirements and Practices," see *Cacao Information Bulletin*, January 1949.

¹³ Voelcker in *Cocoa Conference 1947*, p. 23.

¹⁴ See discussion by F. L. Engledow in Great Britain, West India Royal Commission, *Report on Agriculture, Fisheries, Forestry and Veterinary Matters* (Cmd. 6608, 1945), p. 205.

Cocoa trees found in most producing areas are a heterogeneous mixture of hybrid varieties of this species. It is the tree the Spanish Conquistadores found in tropical America long ago.¹⁵ Other species are found in the wild state, but *Theobroma cacao* is the cultivated type, created by ancient horticulturists.

Of the numerous varieties of the cultivated species, *Criollo* and *Forastero* are best known. The terms are used loosely to distinguish "fine" from "ordinary" cocoa. *Criollo* cocoas, like mild coffees, are grown for their superior flavor characteristics. *Forastero* cocoas are hardier and are grown in almost all cocoa-growing regions. They are the ordinary or bulk cocoas of commerce. Actually, pure *Criollo* is very rare, and the conception of "fine" and "flavor" cocoa includes nearly pure strains and higher *Forastero* varieties.

There are thus three broad divisions according to quality of strain: first the *Criollo* and "near *Criollo*" cocoas, such as are produced in Ecuador, Venezuela, Java, Samoa and Ceylon; secondly the higher *Forastero* cocoas such as those produced in Trinidad and Grenada, and lastly the bulk cocoas of lower *Forastero* strain produced in West Africa and Brazil.¹⁶

Criollo types of cocoa trees yield red or yellow pods that tend to be thin-walled and warty with distinct furrows longitudinally. The seeds are round, fat, white or pink, and tend to be sweet or only slightly bitter. After fermentation they are white to pale brown. Trees of the *Criollo* variety are rather delicate, susceptible to various diseases and injuries, and are not highly productive. This makes for high costs. The market formerly placed a substantial price premium on fine-flavored cocoas of the *Criollo* type, but that was before the war when prices were much lower. In postwar years of shortage and very high prices, the differential has been considerably smaller (see tabulation below). Wherever cross-pollination occurs, inferior varieties and characteristics prove dominant, so that over a long period

¹⁵ Although first seen by Europeans in Mexico, the original home of cocoa was undoubtedly farther to the south—probably in the tropical forests between Ecuador and Venezuela. Some botanists think it was the Amazon Basin of Brazil, and others guess the Orinoco Basin of Venezuela; the tree grows wild in both places. It may also have grown native along the Gulf Coast as far north as southern Mexico. In any event, seeds must have been carried throughout Middle America and the Caribbean. The Spanish Conquistadores found cocoa cultivated on so large a scale that at first they assumed it to be of Mexican origin. Later they encountered it in Ecuador, Colombia, Venezuela, and a number of islands in the Caribbean.

¹⁶ Imperial Economic Committee, *Cocoa*, p. 55. Bowman would classify the cocoas of Ecuador, Venezuela, Samoa, Trinidad, and Grenada ("strongly on the *Forastero* side") as *flavor* beans, and the nearly pure *Forasteros* of Accra, Bahia, and Nigeria as *base* beans.

of time the finest varieties from a flavor standpoint have been gradually threatened with extinction.

Forastero cocoas are derived from wild varieties and are the predominant types today. The trees yield thick-walled red or yellow pods, less elongated and with less well-defined furrows than found in *Criollo* types. The lower the strain, the smoother and rounder the pods. Seeds are dark in color, usually purple, and flat or triangular in shape. They are bitter to taste and usually require about a week of fermentation against a day or two for *Criollo*. Under favorable conditions the trees give high yields, but the product almost always sells at a discount from the "fine" cocoas.

The nomenclature is not well standardized. *Forastero* cocoas are sometimes encountered under different scientific or trade names. In eastern Venezuela they were originally called *Trinitario* to distinguish them from the finer cocoas grown in the western part of the country. Brazilians apparently class *Forastero* (*foresteiro*) as a species and a variety of *Theobroma leicarpum*.¹⁷ The cocoa of Bahia belongs to this variety and that planted in Africa is from Bahian seed.¹⁸ In West Africa *Forastero* is referred to as something different from *Amelonado*, the most important of several subvarieties of *Forastero*. Perhaps most confusion has arisen from the fact that in Spanish *forastero* means something of foreign origin while *criollo* means something indigenous.

Chance early introduction of the yellow *Amelonado* type in West Africa has been considered fortunate in that it gave a high yield, always bred true so that manufacturers knew what they were getting, and was not subject to sterility or self-incompatibility. Introductions from Trinidad of the *Trinitario* complex before World War I, on the other hand, did not find favor among African planters, "probably because of its yields and as no better price was paid for the better cocoa which was all bulked in with the *Amelonado*."¹⁹ Although the *Trinitario* complex is much more variable, its inherent quality is similar and the average yield about the same.²⁰

Commercial grading of cocoa tends to ignore scientific names of species or varieties and attaches designations indicative of source. Thus, Gold Coast cocoa is known as "Accra" after the principal shipping port, and Brazilian cocoa as "Bahia." Both are ordinary or bulk cocoas of the *Forastero* type.²¹ Together they constitute a kind of

¹⁷ Companhia Energia Electrica da Bahia, "The Cacao Industry of Bahia," in *Bahia, Brazil; A Portfolio* (Bahia, n.d.), pp. 10-11. ¹⁸ *Ibid.*, pp. 22-23.

¹⁹ Voelcker in *Colonial* 192, pp. 20-21.

²⁰ Bowman correspondence.

²¹ Also in this category are "Lagos" (Nigeria) and "Sanchez" (Dominican Republic).

quality and price base and are classed in trade circles as "base" grade, commonly used in less expensive cocoa and chocolate preparations. Growths originating in other countries ordinarily sell at a premium or discount from these standard or basic grades. Those commanding a higher price, the "fine" or "flavor" grades, are the *Criollos*, near-*Criollos*, and higher *Forasteros* available in more limited supply, mostly from Central and South American plantations. They are used to impart flavor to chocolate preparations and carry trade names such as "Arriba" (Ecuador), "Trinidad Estates," "Caracas," and "Mara-caibo" (Venezuela).

Price differentials among cocoas are constantly changing: they tend to be substantial when prices are low, and narrow or even disappear when prices are very high. As with coffee and tea, the price spreads between fine and ordinary cocoas reflect changes in the purchasing policies of buyers seeking to adjust operations to conditions prevailing at the time. The tabulation below will serve to illustrate how buyers have regarded different growths in the New York spot market in the past. The wartime OPA ceiling prices established in the United States were based on historical average prices and were indicative of normal price spreads. Representative types had ceilings as follows, in cents per pound:

Fine cocoas	Ordinary (base-grade) cocoas
La Guayra Caracas 14.25	Accra (main crop) 8.90
Trinidad Plantation 14.15	Ivory Coast (main crop) 8.90
Trinidad Estates 13.90	Lagos (main crop) 8.75
Grenada Estates 13.65	Superior Bahia 8.70
Superior Red Summer Arriba 11.50	Sanchez 8.55

The range was wide but not as wide as in the late 1930's when prices were considerably lower and the best cocoa frequently sold at almost three times the price of the lowest grade. With the radically changed market conditions of postwar years, the situation was quite different. In 1947, for example, when cocoa prices reached an extreme high, usual differentials were much smaller and sometimes disappeared altogether.²²

²² Note these contrasts between fine and ordinary cocoas and between their lowest and highest prices (cents per pound) for that year:

Cocoas	Wartime ceiling	1947 Range
Trinidad Estates	13.9	33-51
Guayaquil (Ecuador)	10.7	27-52
Accra (Gold Coast)	8.9	25-54
Bahia (Brazil)	8.7	25-53

In the steep price rise of 1947, base grades actually reached greater heights than

METHODS OF CULTIVATION

Sites for the growing of cocoa may be prepared by various methods, the one chosen frequently depending upon the availability of labor. The oldest method is that employed by primitive peoples the world over. It consists essentially of cutting down everything easily cut, then lighting a huge bonfire, and finally planting in the burned clearing wherever tree stumps, incompletely burned logs, and other impediments permit. Numerous enemies of agriculture are destroyed in the process of burning, and the ashes enrich the soil, but weeds grow freely and their removal involves considerable labor and expense.

Another method of preparing a site consists of clearing the underbrush and girdling part of the tall trees so that they will eventually die, leaving the remainder for shade. Where labor is scarce this is the only feasible method, but many young cocoa trees are necessarily lost by falling branches and tree trunks during the four or five years required for complete disintegration and removal of the thinned-out part of the forest.

As with coffee, there are two common methods of planting cocoa. The wasteful and costly method of planting several seeds "at stake," and then later thinning to the one strongest seedling,²³ has been giving way to nursery-grown and selected seedlings transplanted to the site when about two feet high. In turn, vegetative propagation by cuttings, although not as yet used on a really large scale, is tending to replace seedlings in some cocoa-growing areas, and the even older method of bud grafting has been used in some countries. Grafting methods seem to be especially adaptable to the rehabilitation of old plantations. Resultant trees are small, thus facilitating harvesting and pest control, and permitting shade by use of banana trees.²⁴

Existing stands of cocoa are mostly seed sown, but reproduction by this method has lost favor in some parts of the world, especially the West Indies, as techniques of vegetative propagation have been

some fine grades, probably after the limited supply of the better cocoas was exhausted. During the price gyrations of 1948-50, however, similar scarcity phenomena were present, the fine cocoas tending to sell a few cents a pound higher than base grades when demand slackened and prices fell; but as demand for bulk cocoas rose in relation to prospective supplies and prices responded, price differentials again tended to narrow or disappear.

²³ In some countries, e.g., Ecuador, no thinning is done and several (usually three) seedlings grow up together. This is common practice in coffee planting in some countries, especially Brazil.

²⁴ *Cacao Information Bulletin*, January 1949.

improved.²⁵ In 1945 seed propagation was still considered more practicable in extensive areas of small holdings and limited transport facilities.²⁶ Of the many methods of propagating cocoa vegetatively, greatest success has attended rootings of cuttings. The so-called "Trinidad" method is the best known for large-scale production of clonal material.²⁷ Yet, being somewhat complicated and expensive, it is not considered suitable to West African conditions at present.

As the cocoa tree grows it is pruned periodically, to keep its height convenient for harvesting and to prevent entanglement of its branches with shade trees or to avoid too dense a cover. The vines, moss, and parasitical plants that inevitably appear in tropical cultivations are removed in any system of careful husbandry. When trees are planted close together a considerable amount of self-pruning occurs.

During the period of several years after young trees are established until they come into bearing, weeds are occasionally cleared, as well as the underbrush, to prevent the site from reverting to bush. On native small holdings, especially in West Africa where trees are smaller than in the West Indies, there is seldom any cultivating, manuring, pruning, or spraying.²⁸ Such practices, when considered

²⁵ Even when free of pests, seed-sown plantations are said to yield only 200 to 500 kilos per hectare annually. "With vegetative propagation, on the other hand, an output increase to 2,500 to 3,000 kilos a year may be expected, by selecting mother trees of high yield from existing plantations." *Cacao Information Bulletin*, December 1948.

²⁶ *Colonial* 192, pp. 30-31. In a small island the distribution of cuttings might be ideal, but in a large territory the transportation of cuttings over several hundred miles would probably be impracticable. Furthermore, in West Africa the government would probably have to subsidize the peasant grower, possibly "to the tune of £20 an acre for the plant material." "Hence in large colonies the only method was to try to produce a type of cocoa which would breed true from seed."

Bowman, however, maintained (in 1949) that "transport of improved stock as budwood and subsequent use of the 'Turrialba' method of rooting the cuttings on the spot makes the cutting method practicable in any country."

²⁷ Lee Hines, "Present Methods of Propagating Cacao Need to Be Improved," *Cacao Information Bulletin*, March 1949.

²⁸ Impressions of G. F. Bowman, chief of the Cacao Center at Turrialba (Costa Rica), after a visit to the Gold Coast late in 1948, were reported as follows:

"The general appearance of a Gold Coast cacao farm is rather a shock to anyone from the American side. The trees are not in rows; they are thickly planted and are never pruned. . . . Seeds are planted in groups of three at intervals of 1½ to 3 feet . . . to a depth of about ½ to 1 inch. No more cultivation is done until bush and cacao seedlings have formed a solid mat about 3 feet high . . . with a population of 1,500 to 2,500 per acre. When these trees reach a height of 5 or 6 feet, a second thinning reduces the population to 1,000 to 1,200 per acre . . . The reason for this method of cultivation seems to be the capsid bug infestation . . . They attack the young trees so voraciously that only by growing a large number . . . can an adequate number be brought to maturity. Even then a Gold Coast farm does not

desirable, are found only on plantations. In West Africa native growers usually plant "catch crops," such as yams or maize, while waiting for the young cocoa trees to mature. Cassava and coco-yams are also commonly grown (e.g., in Nigeria) to provide lateral shade for the young trees during the establishment period.²⁹

Numerous problems of cocoa culture are in need of scientific investigation, such as planting distance, weeding, drainage, mulching, shading, and so on. It is now believed that better weed control may be secured by closer planting, spacing trees 6–8 feet apart as against perhaps 12–14 feet, and thereby greatly reducing the labor expense involved.³⁰ Optimum planting distance, however, is linked with the depth of root penetration which, in turn, is governed by the condition and depth of soil. Drainage is also a problem associated with soil conditions, the age of trees, the amount of litter, and similar factors. Mulching may be worth while only under some conditions. The problem of shade, which is common to coffee, tea, and cocoa culture, has already been mentioned.

The advantages of close planting—at least in earlier years—are chiefly two: the problem of weeds is well solved and the trees prune themselves, thereby reducing expenses of cultivation.³¹ The principal disadvantage of close spacing is the admitted difficulty of detecting diseases, especially when cocoa trees are unshaded and make their own canopy.³² Harvesting is not necessarily complicated.

SPREAD OF DISEASES AND PESTS

Although poor cultural methods, long periods of unremunerative prices, and various other factors have contributed to the decline of cocoa in most of the major growing regions, undoubtedly the most important factor has been the spread of destructive diseases and pests.

come into production until five to eight years after planting. It seems to start late, bear heavily from the tenth to the fifteenth year, and then decline." *Cacao Information Bulletin*, April 1949.

²⁹ Darryl Forde and Richenda Scott in Margery Perham (ed.), *The Native Economies of Nigeria* (London, 1946), p. 93. The reference contains a considerable amount of descriptive detail on cocoa farming and farmers. See especially pp. 86–99 and 252–73.

³⁰ F. J. Pound in *Colonial 192*, p. 57.

³¹ C. Y. Shephard, Imperial College of Tropical Agriculture, Interview, February 1949.

³² Close planting and no pruning in some American producing countries are held responsible for facilitating the spread of such diseases as *Monilia* and "witches'-broom," while inadequate fertilization and poor drainage have favored the spread of root diseases. Pan-American Union, *Documentary Material on Cacao . . . , Part I*, p. 6.

Of the numerous plant diseases and insect pests that attack cocoa, only a few are responsible for large declines in production and abandonment of acreage in various parts of the world.

Conferees at the Cocoa Research Conference held in London during May 1945 agreed unanimously:

It must be stressed, with all possible emphasis, that the outstanding problem of cocoa cultivation in West Africa and the West Indies and in tropical America is the prevalence of diseases and pests of the crop. In the last ten years the position has become so menacing that the whole future of the industry has been jeopardised. Its survival is dependent on devising, through research, practical methods of control.³³

In the West African cocoa belt the threat comes primarily from a group of virus diseases described as "swollen shoot" and secondarily from a group of capsid bugs. In the West Indian region the principal menace comes from a fungus disease called "witches'-broom." Another fungus disease, *Monilia*, has been serious in Ecuador, Colombia, and Venezuela. In both West Africa and the Western Hemisphere, various types of pod rots are found which sometimes cause extensive damage to the crops. *Phytophthora* is of some importance in almost every part of the cocoa world.

The principal areas afflicted with diseases of the cocoa tree are the Gold Coast, Ivory Coast, and Nigeria in West Africa; and the northern part of South America (Trinidad, Ecuador, and regions in the Amazon and Orinoco valleys). In the Americas there is basis for gradual improvement in the witches'-broom situation, but in Africa there remains a question whether or not the swollen shoot menace can be brought under effective control.³⁴ Prospects for complete eradication of the disease from the Gold Coast and the Ivory Coast are not regarded as good.

³³ *Colonial* 192, p. 12. In the pioneering planting days of West Africa, prior to 1914, "little or no consideration was given to the essential well being of the crop, though production rose rapidly over an extended period of years." The Colonial Office memorandum goes on to say that decreasing production since 1930 "in certain areas due to the rapid spread of pests and diseases directed attention to the pressing need for investigation of means of combating diseases and improving and stabilising this important crop," and views the "alarming" spread of diseases in cocoa plantations in both West Africa and the West Indies as constituting "threats to cocoa production which, if they are not removed or palliated, may quite conceivably result in the great contraction, if not the entire disappearance of cocoa growing." *Ibid.*, p. 103.

³⁴ Bowman believes that swollen shoot "can destroy a cacao industry based on small holdings, operated by independent, uneducated peasants, but that it can be controlled in plantations in the hands of progressive agriculturists." He also considers the capsid bug problem as serious as that of swollen shoot. *Cacao Information Bulletin*, April 1949.

About the only important cocoa-growing areas not touched by one of the highly destructive diseases and pests are Bahia, the French Cameroons, and the Dominican Republic. Central America and Mexico have not thus far been affected by swollen shoot, witches' broom, or *Monilia*, but every cocoa-growing area may be said to be threatened by the spread of diseases even though the source of infection may seem to be remote.

Swollen shoot disease: occurrence and control.—Swollen shoot is a virus disease of the cocoa tree, so-called because its most distinctive characteristic is swelling of the shoots or branches. It was first recognized in 1936, although it was apparently prevalent in some areas of West Africa half a dozen years earlier.³⁵ The first case must have occurred many years ago (some think around 1920), as it is now known that spread of infection is slow at first but gradually accelerates as more and more trees are affected. It is now known that the virus is carried from diseased to healthy trees by mealy bugs. It also seems established that the swollen shoot virus spreads to cocoa from wild trees (e.g., the giant silk-cotton—about 200 feet high) indigenous to West Africa and, in some places at least, these continue as dangerous as infected cocoa trees themselves.³⁶

The swollen shoot virus occurs in different forms, sometimes strong enough to kill a tree in a year or two and at other times in such weak form as to do little harm. Strong and dangerous strains of the disease always result in loss of leaves and eventual death of the tree. Shoot swelling may be preceded, accompanied, or followed by other symptoms.³⁷ The earliest occur in discoloration of the leaves. Thus far the only known "cure" for a diseased tree is to cut it down and hope to prevent further spread of the infection. In addition, it is also now considered essential to remove four species of forest trees which are known to be alternative hosts.

Swollen shoot has apparently spread farther in the Gold Coast than elsewhere. It was only recently discovered in Nigeria where outbreaks originally were believed to be relatively small. Several strains of a virus have been identified in the Ivory Coast, and one has been re-

³⁵ For a brief "History of the Swollen Shoot Disease on Cocoa Up to 1949," see paper by John Cadbury in *Cocoa Conference 1949*, pp. 34-39.

³⁶ A. F. Posnette, "Alternative Host Plants of Cacao Viruses," in *ibid.*, p. 41.

³⁷ See memorandum prepared by the West African Cacao Research Institute (WACRI), *Swollen Shoot of Cacao—How to Recognise and Control* (March 1945). In its *Annual Report, April 1944 to March 1945*, (Tafo, Gold Coast, 1946) the Institute comments on the variable symptoms found with different strains of the virus and states that two strains "have not yet been observed to cause any stem swelling at all" (p. 16).

ported from Trinidad in the British West Indies.³⁸ Sierra Leone, French Togo, French Cameroons, and Equatorial Africa are apparently free from the disease.

A pamphlet published by the Public Relations Department of the Gold Coast in 1948, entitled *Cocoa and You*, states (p. 6) that swollen shoot killed trees at an average rate of 1 million annually between 1932 and 1939, some 5 million annually between 1939 and 1945, and was currently killing at the rate of 15 million per year.³⁹ It estimated that some 46 million trees were then infected and needed to be cut out, yet the Agricultural Department's rate of cutting out was only about 2½ million trees annually. The conclusion reached was that "unless drastic measures are immediately undertaken, cocoa in the Gold Coast may be wiped out within the next 20 years."

Swollen shoot is so prevalent in some areas that "it seems doubtful if it can be checked completely except by the planting of resistant types of cocoa."⁴⁰ Apparently there is some evidence that tolerance to swollen shoot exists, but the mechanism by which tolerance works has thus far not been discovered.⁴¹ In 1948 investigators in the Gold Coast were "very reluctant" to state that any evidence of tolerance to swollen shoot existed.⁴²

No provision was made for research on the disease problem in the Gold Coast until the establishment of an experimental station at Tafo in 1938. The work of the Gold Coast Department of Agriculture had, to a great extent, been subordinated to the marketing of the cocoa crop.⁴³ In its annual report for 1945-46, the Department recorded

³⁸ To date there is no evidence to indicate that the Trinidad virus is identical with that found in West Africa; hence it is regarded at present as being of "minor" economic importance. *Colonial* 192, pp. 140, 153, and *Cocoa Conference 1948*, p. 64.

³⁹ Some authorities question such figures. For example, G. H. Berkeley of the 1948 Swollen Shoot Commission says: "Knowing something about virus diseases, there is no such thing, in my estimation, as the annual rate of infestation being the same each year." *Cocoa Conference 1949*, p. 61.

⁴⁰ Memorandum of the WACRI, *Swollen Shoot of Cacao*. . . .

⁴¹ WACRI, *Annual Report, April 1944 to March 1945*, p. 19.

⁴² Bowman correspondence.

⁴³ H. C. Sampson and E. M. Crowther, "Report on Crop Production and Soil Fertility Problems" in *The West Africa Commission 1938-39, Technical Reports* (The Leverhulme Trust, London, 1943), pp. 39-40. Sampson and Crowther report that the revenue from an export tax on cocoa and duties on imports "was spent almost as quickly as it came in" on such things as railways, all-weather roads, and a harbor (designed primarily for improving the marketing of the crop), but also large sums were spent on survey, education, and health services. "Recurring expenditure rose rapidly, and, as Government income was so directly dependent on the cocoa crop, it was but natural that the Department of Agriculture should devote much time and energy to this crop. . . . It is therefore all the more extraordinary that until 1937 there was no single agricultural station in the cocoa belt proper at which research

encouraging progress in its program for combating the spread of swollen shoot, and optimistically stated that "if the campaign is prosecuted with sustained vigour, intelligence and confidence, there are good hopes that the disease of Swollen Shoot will be controlled in the Gold Coast within the next few years and will never again become a menace to the industry."⁴⁴

But in its annual report for 1947/48 the Department reports "disappointing" progress due to lack of staff and resistance to the cutting-out program. The campaign was brought virtually to a standstill and compulsory cutting out was stopped in April 1948 because of resistance on the part of farmers.⁴⁵ Not until after two special commissions had investigated both the political and economic aspects of the situation was the cutting-out program resumed, this time on a voluntary basis accompanied by more attractive financial inducements (see Chapter 16).

Capsid bugs (sucking insects), important in a coastal belt of tropical rain forest in West Africa, are not generally tree killers, although they are extremely destructive of the crop. They emit a toxic substance that destroys the tissue surrounding the point of penetration. The most widely distributed of the capsids, *Sahlbergella singularis*, was identified in the Belgian Congo as early as 1895, and the earliest record of damage in the Gold Coast appeared in 1908.⁴⁶ Shortly thereafter a closely allied species, finally named *Distantiella theobroma*, was found to do much damage to young cocoa. Both can

could be carried out on the requirements of the crop. It is difficult to see how any officer of the department could be expected to offer correct advice on cultural or other treatments, as he had had no opportunity to acquire knowledge under the local conditions. Thus, when diseases and pests became serious, the technical officers of the department had no means of knowing how any remedial measures they might suggest would affect the general health of the trees. At one stage they suggested cutting out diseased parts of the trees, but this opened the canopy, with disastrous results."

⁴⁴ Great Britain, Gold Coast Colony, *Report of the Department of Agriculture for the Year 1945-46* (Accra, 1946), p. 4. The control measures employed and usually found effective in checking the spread of swollen shoot involve cutting out all infected trees just below the ground level, frequent inspection, and repeated treatment if and as new infections appear in trees surrounding a cut-out patch. See recommendations of the WACRI, *Swollen Shoot of Cacao . . .*, p. 6. Fortunately the vectors lose their power to transmit the disease after trees have been cut down, thus making the burning of cut trees unnecessary.

⁴⁵ A brief account of the efforts of British cocoa manufacturing interests to secure action on the disease problem in West Africa is given in W. M. Hood, *World Supplies of Raw Cocoa* (Cadbury Brothers, Ltd., Bournville), November 1948, pp. 5-7. See also Cacao Research Panel of the British Food Manufacturing Industries Research Association and the Cocoa, Chocolate and Confectionery Alliance, *Report on a Visit to the Gold Coast and Nigeria, October-November, 1948* (London, 1948).

⁴⁶ John Nicol in *Cocoa Conference 1948*, p. 55.

attack and develop on the pods or vegetative parts of the tree. In addition, numerous other insects occur in the vast region between Sierra Leone and the Belgian Congo and eastward halfway across Africa, as far as the vicinity of Stanleyville. Many are unknown to science and the distribution of only a few is known with any accuracy.⁴⁷

The capsids are apparently not especially numerous, but they can do damage out of all proportion to their numbers. A heavy infection will kill a cocoa tree in two or three years. No absolutely effective field control has thus far been proved, but experiments with chemical poisons, repellents, or attractants (e.g., nicotine sulphate) seem to offer a partial solution to the problem.⁴⁸ The capsid situation has been complicated by a fungus (*Calonectria* sp.) which causes much (perhaps most) of the damage at one time ascribed to capsids.

Witches'-broom disease.—In the Western Hemisphere fungus diseases are of much greater importance; no really serious insect pests have thus far appeared. Witches'-broom (witch broom-*Marasmius perniciosus*) is a fungus disease which first attacks the twigs of the cocoa tree, causing them to develop a profusion of small extensions which produce a broomlike effect on the ends of the branches. A parasitic mushroom, the disease is believed to have originated somewhere in the Amazon Valley and then spread to Surinam where it was observed in 1895. Later it spread to Ecuador, Trinidad, and adjacent areas, meanwhile practically eliminating the cocoa industry of the Dutch colony by the mid-1920's. Fortunately, progress has been made in developing resistant strains. This is considered by some experts as possibly the key to the rehabilitation of the cocoa industry in the Western Hemisphere. By others, the early maturing and disease-resistant strains are not yet considered of sufficiently good commercial quality to offer great promise. The search continues currently, both through selection and crossbreeding, in Trinidad and Ecuador.

Back in 1932 the Imperial Economic Committee warned of the menace of this disease to the cocoa industry in the West Indies. Some 28 percent of the cocoa area of Trinidad was then affected. "It is fortunate that the general attack in most of the areas affected has

⁴⁷ F. A. Squire in *Colonial* 192, p. 117.

⁴⁸ Nicol, *op. cit.*, p. 56. Later information suggests that "recent work at W.A.C.R.I. has shown that capsids on young cacao can be controlled by the application of DDT emulsion to the trees." (R. A. E. Galley, "The Control of Cocoa Diseases in West Africa," *World Crops*, May 1950, II, 190.) Like Bowman, Galley believes the capsid pest problem as important as swollen shoot.

thus far been mild in intensity, but the experience of other cocoa-producing countries where Witch Broom disease has occurred should be grave warning to the planters of the risk of treating lightly the early stages of a menace which might have serious, and even disastrous, consequences unless great care is taken to carry out control measures.⁴⁹

The Amazon and Orinoco valleys, as well as most of the low-lying areas of tropical South America, are extremely heavily infected with witches'-broom. In a period of some two decades, scientists failed to eradicate or control it;⁵⁰ hence the quest to discover or develop an immune or resistant variety. For this reason inquiries were not being made into the effect of cultural practices on the disease.⁵¹ The value of the cocoa crop in 1945 was considered to be too low to bear the cost of spraying or cultural treatment, a conclusion apparently reached by some at the time the disease first appeared in Trinidad.⁵² Yet it is not known whether the disease can be controlled by spraying and cultivating. At 1947-50 prices, it probably would be economical to use this approach if it were proved effective.

Failure to control the spread of witches'-broom led to a search in the Amazon Valley for varieties that might be resistant to the disease. Trees were found which were completely free of infection, and a seedling population of these trees was introduced into Trinidad in 1938. By 1945 there were "one or two trees" out of several thousands which showed no signs of the disease, about 10 percent were heavily infected, "but the mass came in between these two extremes showing a greater or less amount of infection."⁵³

Other diseases and pests.—Compared with swollen shoot (to date an African problem) and witches'-broom (an American problem), the other enemies of the cocoa tree, such as *Monilia*, *Sahlbergella*, and various pod rots (e.g., *Phytophthora palmivora*, found to some extent in all parts of the cocoa world), take second place in damage done. Nevertheless, several of these, although not as widespread as swollen shoot and witches'-broom, have seriously reduced the pro-

⁴⁹ Imperial Economic Committee, *Cocoa*, p. 45.

⁵⁰ The disease was known and studied to some extent in Ecuador and British Guiana prior to its discovery in 1928 in Trinidad where most of the work of investigation and experiments with control measures seems to have been done. Early efforts of the Trinidad authorities to eradicate the disease by cutting out infected tissue were unsuccessful, and it spread with alarming rapidity in the early 1930's. Attempts to control the spread of the infection by dusting and spraying, reducing humidity by reducing shade, pruning, and extra drainage, likewise led to little. Then control evolved rapidly into picking off and pruning of the broom tissues, but the disease continued to spread.

⁵¹ Gerard Clauson in *Colonial 192*, p. 70.

⁵² Geoffrey Evans in *ibid.*, p. 71.

⁵³ Pound in *Colonial 192*.

duction of specific countries and, in some cases, caused an abandonment of acreage. For example, the combination of witches' broom and *Monilia* in Ecuador⁵⁴ resulted in a drastic decline in production and exports from a country which at one time (from about 1860 to 1910) was the world's leading cocoa producer. In Costa Rica, on the other hand, these diseases are not found (nor is swollen shoot), but the *Phytophthora* pod rot is considered the most important disease of cocoa there. Losses occasioned by this pod rot "may exceed 50 percent of the harvest, with a minimum of 30 percent in times of little rain."⁵⁵

PREPARATION FOR MARKET

Compared with the procedure for preparing coffee or tea for market, the processing of raw cocoa is relatively simple and involves far less equipment. After removal from the pods, the seeds surrounded by a gooey substance are generally fermented in order to eliminate the unwanted pulp and to develop certain attributes which, upon roasting, give the desired chocolate flavor. The beans are then dried and bagged for shipment.

Proper fermentation seems to be the key to the preparation process, and it is done most economically in the country of production. Improper fermentation may seriously affect the value of the product for the manufacturer.

While the exact nature of the chemical changes which take place in the course of fermentation has not been determined, opinion is general that it not only ensures a more thorough drying and facilitates handling and marketing, but also has a beneficial action on the interior of the bean, which besides assuming a desirable cinnamon-brown colour, is rendered less acrid in taste.⁵⁶

Unlike coffee and tea, where the effects of processing on flavor are fairly well established, cocoa is still thought to develop a "good deal" of its flavor "at some stage" during fermentation.⁵⁷ Perhaps because cocoa is so frequently modified by the addition of other ingredients in manufacturing, research on flavor has lagged.

A survey of scientific literature⁵⁸ reveals that "no accepted knowl-

⁵⁴ *Monilia*, very serious in Ecuador, is also said to have spread to parts of Colombia, Venezuela, and Peru.

⁵⁵ *Cacao Information Bulletin*, February 1949. This common disease flourishes as plantations grow older or as good cultural practices are relaxed. Like the common cold in humans, nobody takes it very seriously, yet "it reduces productive efficiency more than any other disease." *Ibid.*, September 1949.

⁵⁶ Imperial Economic Committee, *Cocoa*, p. 20.

⁵⁷ *Colonial* 192, p. 60.

⁵⁸ Made by the Research and Development Department of the General Foods Corporation and summarized in *Cacao Information Bulletin*, August 1948.

edge exists of the real nature of cacao curing." Workers in the field are not agreed on whether bacterial fermentation is necessary. They agree that the germ must be killed and that fermentation aids by removing pulp, but disagree on the desirability of the alcohol and acid formed. Not enough research has been done to develop a real understanding of the subject, according to those most concerned with the problem. If a satisfactory alternative to fermentation could be found, one immediate practical result would be to increase the yield of dry cocoa obtainable by an average of perhaps 8 percent.⁵⁹

Although cocoa is sometimes dried without being fermented, the usual procedure is to ferment, the exact process depending upon such variables as the climate, and whether the crop was grown by peasant farmers or on an estate. Fine cocoas of the *Criollo* type require much less fermentation than ordinary cocoas. The time needed for fermentation depends upon whether the beans are sun-exposed or artificially heated. Native cocoa is often fermented in a most primitive fashion on the ground, whereas on plantations the beans are treated in specially constructed "fermentaries" or "sweating boxes."

Fermentation consists essentially of putting the perishable cocoa seeds as they come from the pods into a perforated box or tank, where they are left under cover and high temperature for a period of days until the juicy "sweatings" of the pulp are drained off. The beans must be mixed and stirred at intervals (to assure evenness of fermentation), and the process arrested at the right time (3-12 days) in order to avoid under- or overfermentation.⁶⁰ The heat generated during fermentation kills the cocoa seed and leads to changes in the character of the bean. The fermented beans contain about one-third water, which content must be reduced below 8 percent, by drying (curing), for safe storage and shipment.

After the cocoa beans are fermented they are further dried in the sun and/or artificially; manufacturers prefer the natural, sun-dried

⁵⁹ *Cocoa Conference 1947*, p. 36. Marked variations in the quality of commercial cocoa beans from a single country of origin are in large part attributed to fermentation; hence the quest to dispense with this stage of the process of preparation for market. "As early as 1913 methods were being devised to remove the pulp by other means . . . all have failed on the most important characteristic—that on roasting the beans must give a good chocolate flavour." R. V. Wadsworth in *Cocoa Conference 1949*, p. 72.

⁶⁰ The chemical, physical, and other changes involved in fermentation and curing of different types of cocoas (based on A. W. Knapp, *Cocoa Fermentation*, Bale, London, 1937) are described by Martin Schoen in Morris B. Jacobs (ed.), *The Chemistry and Technology of Food and Food Products* (New York, 1944), I, 830-32. Much difficulty has been encountered in West Africa with unfermented or partly fermented cocoa.

product. Some consider curing (drying) an extension of fermentation, as color and other changes in the bean continue until the process is completed. Beans are spread out on simple matting, trays, or large roofed installations with sliding trays so that protection from rain can be easily provided. In areas of heavy rainfall, artificial drying is sometimes necessary. In general, drying requires 3–8 days, and beans dried slowly and evenly are considered better in quality.

In a few growing areas the beans are washed before drying, sprinkled with fine red earth, or trod upon with bare feet (“danced” in Bahia) to rub off the dull grayish coating of dried pulp and thereby improve their appearance for the benefit of buyers.

The general opinion among manufacturers is that these processes are not necessary, and some consider them inadvisable. For example, washing of the beans before shipment, while it undoubtedly improves their appearance, at the same time renders them more brittle and liable to damage in transit and thereby more liable to grub attack, and also to burning when roasted in the course of manufacture.⁶¹

On estates the usual practice involves no washing at all.⁶² The important factors are correct fermentation and drying, preferably the natural way, in order to avoid a smoky flavor sometimes resulting from artificial drying.

The fermented and dried cocoa beans look something like almonds, though less pointed, and are surrounded by paperlike skins or shells. They will keep for a year or more under optimum storage conditions, but in the tropics two or three months is about the limit. The dried beans are transported in various ways to gathering centers where they are packed in bags (usually jute) for overseas shipment. Cocoa statistics, e.g., those of the New York Cocoa Exchange, usually refer to the dried, raw cocoa beans thus packed in their original bag. When quantities are reported by the bag rather than by the pound, hundredweight, or ton, the unit may be anywhere from 60 to 75 kilos or 132 to 165 pounds.

Grades and quality. — Although grading systems have been worked out for cocoa in most of the principal countries of production, they are not highly developed, and as yet no method of appraising quality, such as cup testing for coffee, has been devised. Grading systems are based on appearance of thoroughly dry beans, number of imperfections, amount of foreign matter, quality of fermentation,

⁶¹ Imperial Economic Committee, *Cocoa*, p. 20.

⁶² *Colonial* 192, p. 60.

and so on.⁶³ Taste testing, however, is limited to manufacturers and is employed more for the product, chocolate, than for the bean itself. But the manufacturers have been largely responsible for such grading and quality improvement as has been witnessed over recent decades.

After a wartime lapse, sorting and grading were reinstated in West Africa for the 1946/47 season, but quality continued to deteriorate in the sellers' market that prevailed, and Grade B (fair-fermented cocoa) tended to be regarded as the standard on world markets. With the formation of the Cocoa Marketing Board for Nigeria in 1947, additional grades were introduced, a steeply graduated scale of prices to growers was put into effect, and a substantial improvement in quality resulted.⁶⁴ In the Gold Coast, where growers were paid the same price for Grades I and II,⁶⁵ no improvement in quality was witnessed. For the 1948/49 season, however, differentials were proposed involving the payment of a premium for the best grade rather than a discount on the inferior cocoas. British manufacturers considered this approach wrong in principle as it tended to perpetuate a low quality base as standard, thus undermining manufacturers' efforts which had resulted in establishing Gold Coast cocoa as the best "basic" cocoa available before the war. As of early 1951 there were still no differentials—only proposals.

Unfortunately United States manufacturers, the largest of whom have always had a tendency to buy cocoa on a price rather than a quality basis, seemed willing to continue accepting fair-fermented cocoa as the standard grade. Thus, despite the desire of manufacturers in nearly all other consuming countries (who made representations to the Gold Coast Marketing Board) to return to the better pre-war quality base, progress toward improvement was slow. Even with (or perhaps because of) high prices, the world trade in cocoa rested on a debased quality standard.

⁶³ Compulsory inspection and the prohibition of exports below a certain standard of purity were first introduced in the Gold Coast in 1934.

⁶⁴ By the close of the 1947/48 season, the improvement was so marked that the marketing board gave notice of its intent to withdraw Grade IV entirely from its buying schedule for 1949/50. Although there were only two grades in 1946/47, about 63 percent of the output was considered of the lowest quality; by 1948/49 only 1 percent was so rated and 80 percent was graded I *vs.* about 15 percent in 1946/47. Propaganda and intelligently fixed price differentials did the trick. A. V. Gibberd, "Improvement of Quality of Nigerian Cocoa," *Cocoa Conference 1949*, p. 70.

⁶⁵ Grades are designated as I, II, etc., in West Africa and A, B, etc., in sales to United Kingdom manufacturers.

EVOLUTION OF THE INDUSTRY

Problems in connection with growing cocoa in generally under-developed tropical areas have obvious significance to the countries concerned, but take on broader meaning only as they are related to the cocoa and chocolate industry of the world. This industry is "supported" by the cocoa bean: the main products derived from it have become part of the diet in practically every advanced country of the Temperate Zone. Cocoa and chocolate are sometimes referred to as "twins born of the marriage between tropical agriculture and Western industry." But popular as they may be, they are not indispensable items in one's diet.

Manufacturers in the cocoa-consuming countries, despite their relatively recent concern over supply sources and problems of the grower, have a fairly long history of developing products, processes, machinery, and markets. Their demand for cocoa beans is a reflection of their progress in promoting the consumption of cocoa powder, chocolate blocks, chocolate confectionery, and related products. Such consumption, however, has long been sensitive to the changes in the economic well-being of final consumers, and it has expanded only as price relationships have been favorable.

Cocoa-bean prices have generally made an exaggerated response to the periodic swings in the trade cycle, and at times have created for the manufacturer risks of the order of those frequently incurred by the grower. Imperfections in marketing machinery have plagued the manufacturer as well as the cocoa producer. The fortunes of both are today more than ever interdependent. How the industry came to be, how it developed, what it does, and its present position and future prospects are considered in the following pages.

HISTORICAL BACKGROUND

Cocoa is one of the distinctly American contributions to the world's food. In parts of tropical America it was a component of the diet long before the time of Columbus. It was used by the Toltecs and Aztecs in Mexico and by the Incas of Peru. Legend has it that cocoa was a favorite food of the gods. At least the use of the cocoa bean in one form or another seems to be of ancient origin.

There were undoubtedly various methods of preparing cocoa as a food or a beverage in pre-Columbian times. Early records describe a dish of doughy or gruel-like consistency made by the Aztecs by grinding the bean with corn, seasoning with chili, spices, and herbs, and then thinning with water. Perhaps most often recounted is the story of the enormous quantities of a chocolate food-drink consumed by the emperor, Montezuma.

Roasted and ground cocoa beans were apparently mixed with a small amount of powdered corn meal, vanilla, herbs, and sometimes honey. Water was added and the mixture then beaten to a froth with a swizzle stick until it had a consistency variously described as "almost like that of a solid" or "like honey." Our word "chocolate" supposedly derives from the Mexican word for this concoction, *chocolatl*, meaning foaming drink or foaming water. Rules for drinking or eating it stress the importance of "opening the mouth wide, in order to facilitate deglutition, that the foam may dissolve gradually, and descend imperceptibly, as it were, into the stomach."¹

For many centuries cocoa beans served as money in tropical America. As late as 1887 they were still being used as a medium of exchange in isolated areas of Mexico and Central America.² Taxes were at one time collected, soldiers paid, and slaves purchased in beans, and the imperial treasuries of the Aztecs are said to have consisted of oversized chocolate bars.³ Some today would find merit in an official medium of exchange that could not be hoarded long because of spoilage but had to be spent or eaten to have any value to the hoarder.

Apparently Columbus took home to Europe some specimen cocoa beans. But it remained for Cortez in 1519 to see them used on a large scale as an article of diet. He and his followers took their knowledge of the use of the beans home to Spain, where chocolate was originally made in the Mexican fashion. Thus, cocoa was introduced into Europe by the Spanish about 1528, almost a century before the introduction of tea by the Dutch in 1610 and coffee by Venetian traders in 1615.

¹ Field Museum of Natural History, *Cacao* (Leaflet 4, Chicago, 1923), pp. 4-5.

² O. K. Moore, "Gifts of the Americas—Cacao," *Agriculture in the Americas*, October 1946, VI.

³ One historian describes the accepted role of the Aztecs in the European discovery of cocoa as "exaggerated," pointing out that they were importers of the product and that consumption was restricted to the upper classes. It was really the Mayas who had the knowledge and were the principal cultivators and users of cocoa. Erneholm, *Cacao Production of South America*, pp. 30-33.

When first introduced into Spain cocoa was an expensive novelty, used hopefully by the ailing rich as a medicine or tonic. Apparently it had limited taste appeal. Cortez, while recognizing the food value of the preparations he found in Mexico that were derived from cocoa beans, objected to their bitter taste. But with the advent of cane sugar about this time, it was found that a palatable beverage could be obtained from a mixture of roasted and ground beans plus vanilla, cinnamon, and sugar. Spanish families in America used this beverage, and it was served after Mass in many churches in Spain.

For some years cocoa was unknown in Europe outside Spain, for the Spanish attempted to monopolize production, trade, and manufacture of the product.⁴ But once a simplified version of a sweet drink was devised, chocolate drinking became known and popular elsewhere, spreading to France, England, Holland, and Germany. The Spanish had learned to manufacture chocolate commercially in the form of prepared cakes⁵ but were unable to keep their formula secret for very long. By 1700 the English had improved the flavor of the drink, and its richness by the addition of milk.

During the latter part of the 17th and the early part of the 18th centuries the Spanish trade policy collapsed, and supplies of cocoa beans became available to countries other than Spain. Chocolate drinking became fashionable, partly because of the excellent flavor of the beverage and partly because of its high price.⁶ Chocolate houses, like the famed coffeehouses of the time, were established in England, France, Holland, Germany, and finally Italy. The contraband trade outside the control of Spain had flourished to such an extent that chocolate factories could be erected and supported throughout Europe and were also established in the English colonies of North America.

The social use of chocolate in beverage form probably reached its

⁴ A shipload of cocoa beans seized by the English in 1579 was burned as worthless. The Dutch also destroyed seized Spanish cargo, ignorant of the use or value of cocoa. Once the "secret" was known and a trade in cocoa beans developed, the principal supply source shifted to Venezuela from Mexico. A contraband trade was carried on with the Dutch and English. By the end of the 17th century all "Caracas" cocoa was going to Amsterdam or London and none to Spain.

⁵ Origin of the method is credited to the native women of Guatemala, who had devised a method for storing a portion of their food supply in this form.

⁶ The extravagant Louis XIV is said to have stopped serving chocolate in his court because of its excessive cost. In other countries, however, the social prestige that was attached to chocolate drinking encouraged its use among the upper classes. The popularity of chocolate in fashionable circles in England led to the imposition of a heavy import duty on cocoa beans, and the beverage remained a luxury of the rich throughout the 18th century.

peak in the 18th century. Other uses of the products to be derived from the cocoa bean were yet to be discovered. Early in the 19th century, however, high import duties were reduced and a method of extracting cocoa butter was invented. Cocoa, on the order of the present-day product with part of its fat content removed, was introduced and gradually replaced the rich chocolate beverage in popularity. As its cost was lowered, the drinking of cocoa became less of a luxury.

The modern cocoa and chocolate manufacturing industry had its origin not much more than 100 years ago. It was really a new industry, made possible by lower raw material costs and by machinery. Until 1778 chocolate was manufactured exclusively by hand, and improved machinery did not appear until the first quarter of the 19th century. Technological progress was at first slow, but it gained impetus after the middle of the century and has continued ever since.

Eating chocolate and chocolate candy are of comparatively recent origin. Sweet bar chocolate was supposedly introduced into the United States in 1831, and the first reference to eating chocolate in England was in 1842. Confectionery chocolate was popularized by French makers in the 1860's, although first made some years earlier. It was not until around the turn of the present century, however, that the now widely popular milk chocolate began to come into its own, after having first been produced on a commercial scale in Switzerland about 1876.

The importance of eating chocolate—a new product destined to revolutionize the industry and trade—was hardly realized at the time of its introduction. The oldest French and English chocolate manufacturers have no record of when they marketed their earliest brands.⁷ Yet eating chocolate and the successive reductions in the price of cocoa beans during the past century have been largely responsible for the development of the industry today.

MANUFACTURE OF COCOA AND CHOCOLATE

Since cocoa beans are the raw material not only for a beverage but for a variety of chocolate products, one rightly expects manufacturing to be relatively a more important aspect of the cocoa industry than of either the coffee or tea industries of the world. Every manufacturer has his own method for modifying the natural flavor of the cocoa bean to make his products please the consumer's palate. Often the proc-

⁷ Imperial Economic Committee, *Cocoa*, p. 13.

esses used are trade secrets, so that no outline of manufacturing can be strictly applicable to all companies producing cocoa and chocolate products. In general, however, the essential steps in processing, such as cleaning, roasting, hulling, grinding, and blending, are similar though carried out by different methods.

Cleaning.—Raw cocoa beans as imported to manufacturing centers contain miscellaneous foreign matter such as stones, sticks, and dust, which must be removed before processing can begin. Commonly this is done by air; but the beans may also require washing, depending upon their origin and how well fermentation and drying have been carried out. When grading has been poor the beans must also be sorted in order to facilitate uniformity of roasting in the step which follows. In the United States the raw beans are usually screened and cleaned at the same time by a machine which sucks them up in a strong air draft. After cleaning, the beans are ready for roasting. How the roasting is done, and the processes from then on, depends upon the product desired.

Roasting.—In much the same manner as coffee, the cleaned cocoa beans are roasted until they are cooked the precise amount for the ultimate product desired. Roasting facilitates the removal of husks and develops flavor, color, and aroma. The shells need to be loosened for easy removal, the natural bitter taste of the raw bean needs to be modified, and the color improved. Revolving drums are commonly used when roasting either in batches or by continuous process, and the beans are fed counter to a hot air current (275° to 350° F.) or superheated steam. When ready after a relatively few minutes or as much as an hour, they are cooled quickly in order to prevent over-roasting from self-generated heat.

The heat treatment of raw cocoa produces many chemical changes, some of which may be delayed by regulating the amount of roast. For some products roasting is primarily to help in the later removal of the shells; and the flavor, color, and other characteristics desired wait for their development until after mixture with sugar and other ingredients. Cured beans have lost about half their *original* weight, and moisture content is reduced to about 5–6 percent.

Hulling and separating the nib.—Roasted cocoa beans are readily broken into particles called “nibs” by gently passing them through rollers or other cracking devices. The hard, fibrous shell particles mixed with the nibs must be separated by a winnowing device. Thus, the first of a series of by-products from processing the raw cocoa bean is obtained. Cocoa shells contain about 1 percent of theobromine

but have little or no flavor or food value.⁸ They are sometimes ground to make a poor substitute for cocoa, a food for cattle, or employed as a fertilizer or fuel. In the process of "nibbing," the shells are not only eliminated but the small, tacklike, and poorly digestible germ of the bean is separated, and the nibs are sorted according to size preparatory to grinding.⁹

Grinding.—Sooner or later the roasted particles of the bean which remain after separating the shells are ground in order to release the fatty substance, cocoa butter, but grinding does not always directly follow separation of the nibs. Up to this point the raw cocoa beans have been processed in essentially the same manner regardless of the product desired, but now comes a parting of the ways. If cocoa powder and straight bitter chocolate are the only products desired, the nibs go directly to the grinding mills and are converted into a paste ready for further treatment; but if any of a number of chocolate confectionery products is wanted, the nibs of beans from various sources are first blended in order that they may be ground into a liquor together. The methods for treating the nib are numerous and need not be discussed here, but whenever grinding does take place the resulting product is a chocolate liquor, with or without other flavors, which hardens into cubes or bars when cooled.¹⁰

Blending.—In cocoa and chocolate manufacture the proper blending of beans with different characteristics is highly important, although the practice does not seem to be as fully developed as with

⁸ In the mid-1930's cocoa shell was found to have a high vitamin D content, and experiments were begun on its use as an accessory fodder for cows and other animals. It was found that the vitamin consumed by cows was largely conveyed to the butter and it was hoped that, by using cocoa shell in winter feeding, butter could be produced with a vitamin D content equal to that of summer butter. A. W. Knapp (ed.), *Vitamin D in Cacao Shell* (Bournville Works, Publication Dept., Technical Series, Bournville, n.d.). Inquiries in 1949 failed to produce any evidence of wide use of cocoa shells in feeding, although the author has been led to believe that satisfactory results have been obtained, especially if amounts used are not excessive.

⁹ Cocoa seeds or beans are composed as follows:

85-87 percent Nibs (broken cotyledons)	}	Contains 55 percent cocoa butter—used in cocoa and chocolate manufacture.
1 percent Germ (radicle)		
10-14 percent Shell or husk	}	Contains 3 percent cocoa butter—a by-product used in cattle feed.

¹⁰ In some circles chocolate liquor is referred to as "cocoa mass." United States standards for chocolate liquor (chocolate, baking chocolate, cooking chocolate, chocolate coating, bitter chocolate coating) allow for a wide range of optional spicing and flavoring ingredients, but the product must contain not less than 50 nor more than 58 percent cocoa fat by weight. Definitions and standards of identity for cocoa products are set forth in U.S. Federal Security Agency, Food and Drug Administration, *Definitions and Standards for Food* (SRA, FDC 2, rev. 1, January 1949), pp. 6-12.

tea and coffee, perhaps because it is not so necessary in view of the various outside flavoring agents that are commonly added. In a chocolate bar, for example, there may be only a small percentage of fine flavor grade beans used, or none at all.¹¹ Even high-grade chocolate products rarely include more than 25 percent flavor beans. Thus, although chocolate products are commonly a blend, they are not ordinarily a blend to the same extent as tea and coffee. Three or four types of beans may be used in a blend today, whereas some 20 or 30 years ago as many as eight types were used. This change reflects both the relative scarcity of flavor grades and improvements in manufacturing techniques.

Cocoa and cocoa butter.—Half or more¹² of the content of cleaned and roasted cocoa is a natural fat, cocoa butter, which is liberated in grinding the nibs and reducing them to a liquid mass (chocolate liquor or cocoa mass) which solidifies on cooling. The high fat content not only makes the product at this stage too rich and indigestible but interferes with complete mixing with water. Part of the cocoa butter is therefore pressed out, leaving a dry substance which when ground is powdered cocoa. Extraction of the fatty substance is accomplished by subjecting the liquor to hydraulic pressure, squeezing the mass until the yellowish liquid, cocoa butter, emerges. In high-quality cocoa about 20 to 30 percent cocoa butter remains.

The richness of the earlier beverage-like mixtures made from cocoa beans tended to limit consumption. In 1828, however, the Dutch firm of Van Houten introduced the process of extracting some of the cocoa butter from the nib, thereby reducing the fat content and making possible a more acceptable cocoa beverage, at the same time providing the extra butter needed for developing popular eating chocolate.

The yellowish cocoa butter, which turns white with age, has many uses. It may be an ingredient of products like margarine and a number of sugar confections. It is used in pharmaceutical and toilet preparations. Its principal use is, of course, in the manufacture of chocolate confections. Before this use was so important, cocoa powder was the main end product of manufacturing; now it is cocoa butter. If it were not for the demand for cocoa butter in chocolate-making there might not be so great an output of cocoa. More chocolate is

¹¹ This applies especially to the very popular milk chocolate bar in which African types of cocoa beans may be used satisfactorily. Flavor grades are needed for straight chocolate, which continues in strong demand in European countries (e.g., Switzerland, the Netherlands, and Belgium), but not so much so in the United States, or even in the United Kingdom, despite the limited supply of milk chocolate since the war.

¹² Usually 50-55 percent, depending on variety, season of production, and similar factors.

used than cocoa, and that which has had most of its fat content removed, defatted cocoa, may therefore be considered a by-product which finds a comparatively restricted market.¹³ Sometimes the demand for cocoa butter alone is greater than the supply and, although the laws of important consuming countries generally permit certain substitutes to be used provided proper declaration is made, chocolate manufacturers on the whole seem opposed to the use of such substitutes.

To meet the demand for cocoa butter in excess of supplies available from simultaneous production of powder and butter, a different though allied process is employed. This process involves taking out almost the whole of the butter from the chocolate liquor, leaving only a cocoa cake with a negligible fat content. In some countries physical expression of the cocoa mass is followed by solvent extraction in order to secure even more fat. The *total* output of cocoa butter is thus not necessarily related to the output of cocoa powder.

Cocoa, as used in beverages, is a powder derived from grinding the residue that results from the process of extracting cocoa butter. Even though flavored, cocoa in this form is not generally acceptable to consumers, and practically all cocoas are "treated." At some stage in processing, the beans are treated with an alkali to make the final cocoa product more soluble and to modify its flavor. Cocoa is never entirely soluble. The beverage is, in fact, a suspension of cocoa in the fine paste of the bean's natural starch. When the starch content is increased a smoother beverage results. "Dutch process" cocoa is specially treated with an alkali (e.g., potassium carbonate) to produce a darker color and a somewhat different (less acid) flavor.

Chocolate.—Chocolate differs from cocoa powder in having a higher fat content and additional ingredients designed to improve flavor and texture. Various refinements are employed by chocolate manufacturers not only to improve flavor but to facilitate handling, increase bulk, add to appearance, or affect solubility. Ground cocoa nibs, containing at least 50 percent cocoa butter and mixed with sugar, are usually passed several times through a series of grinders. The mixture is pressed through rollers of increasing speed until the fat is no longer able to lubricate it and the liquid comes out as a spray of powder. This powder is then remixed with additional cocoa butter; it again becomes a liquid and the process is repeated until the desired results are obtained.¹⁴

¹³ Low-fat cocoa in the United States contains less than 10 percent fat, whereas high-fat or "breakfast cocoa" must contain not less than 22 percent. Medium-fat or just "cocoa" contains less than 22 but not less than 10 percent cocoa butter.

¹⁴ Typical sweet chocolate, the largest single item in consumption, consists of

Many of the processes involved in chocolate manufacture are designed to produce a finer, smoother product. By rolling, rubbing, kneading, and reworking a number of times a highly refined food is obtained. A process known as conching is often used, the details of which are considered trade secrets. Conching involves slapping the liquid chocolate about in large containers by paddles or rollers for a considerable period of time. There are various theories as to what happens during conching, but very little is definitely known. As the process sometimes requires 60 or more hours, "it must do something, or else it was a shocking waste of time. But what it did, or why, was not clear."¹⁵ Another treatment, known as "stoving," is apparently still employed by some manufacturers. This very old process involves placing the mixture, after partial processing, on stoves at about 120° F. for varying periods. Smoothness and bulk are also obtained by adding certain permitted substances. Increased solubility is claimed as the result of alkalizing the bean or powder.

At various stages in the manufacture of chocolate, ingredients other than sugar and cocoa butter are added and blended to produce such items as milk chocolate and vanilla or almond chocolate. Standards and definitions for these and a variety of coatings and mixtures with dairy products have been promulgated in the leading manufacturing centers. Standardized and mass-produced items are turned out in modern, highly mechanized factories in each of the principal consuming countries. Handwork is reduced to a minimum except for items such as "assortments."

PROBLEMS OF THE MANUFACTURER

Manufacturers of cocoa and chocolate products the world over have been confronted with serious cost problems in recent postwar years. Not only has the cost of their principal raw material skyrocketed, but other essential ingredients have greatly increased in price and oftentimes have not been available in adequate amounts. Added to these troubles have been rising labor costs, common to all manufacturers in varying degree, yet especially acute in the chocolate industry owing to its lack of flexibility of operations.

On the one hand, the plans of some manufacturers, especially those in the United Kingdom and Europe, have depended upon uncertain allocations of necessary raw materials. On the other hand, high sales prices made necessary by high costs have encouraged consumption of approximately 42 percent chocolate liquor, 42 percent sucrose, and 16 percent added cocoa butter.

¹⁵ *Colonial* 192, p. 65.

sumer resistance and weakened the industry's competitive position. Even in countries where sweets were rationed and the demand was much greater than the supply, manufacturers could not look forward to the longer-term development of their businesses under the existing cost structure.

The processes of manufacture described in the preceding section apply to cocoa and chocolate in whatever "industry" found. It is true that in the principal cocoa-consuming countries, a special industry has developed engaged basically in the manufacture of chocolate and cocoa products; but many of the units of this industry sell coatings and flavorings to the confectionery industry, and many produce products competitive with those made by the confectionery industry. On the other hand, a few of the establishments classified in the confectionery industry in the United States make their own chocolate, and many produce chocolate confectionery directly competitive with the products of some chocolate and cocoa manufacturers. In the United Kingdom and several European countries, the large confectionery companies usually do their own bean processing and make their own coatings.

Distinctions are thus far from clear-cut and most of the discussion that follows, while applying primarily to the chocolate and cocoa-products industry, applies secondarily to that part of the confectionery industry which has an important stake in these commodities. In the United States, according to the Census of Manufactures, there were only 31 "establishments" in 1947 classifiable as "primarily engaged in manufacturing chocolate and cocoa butter from cocoa beans, and in the further manufacture of cocoa, solid chocolate bars, and chocolate coatings"; but they produced ("value of shipments") some \$350 million worth of products, using as raw materials principally cocoa beans, sugar, corn syrup, creamery butter, milk in various forms, and nuts.¹⁶

The chocolate and cocoa-products companies sell to the some

¹⁶ These "establishments" shipped the following products in 1947 (amounts and value in millions) :

Product	Pounds	Dollars
Chocolate coatings (sweet, milk, liquor)	421	150
Solid chocolate (sweet, plain milk, milk with nuts, etc.) (includes 245 million lbs. consumer-size chocolate bars, valued at \$109 million)	288	126
Powdered cocoa (unsweetened, sweetened, or mixed)	173	38
Cocoa butter	26	17
Chocolate syrup	95	10
All other chocolate products .....	...	7

Similar items made by the confectionery industry were not reported in full by the census in order "to avoid disclosing figures for individual companies."

1,600 candy or confectionery makers a variety of chocolate coatings, syrups, cocoa butter, solid chocolate, and powdered cocoa. Although these are among the important ingredients used by the confectionery industry,¹⁷ the candymaker has alternatives not possessed by the chocolate manufacturer. Regardless of what the buying public may desire—and chocolate seems to be the most popular flavor in many areas—if the confectionery maker cannot produce a chocolate product that can be sold at an acceptable price, he can produce items using less of, or eliminating, the ingredient that has become prohibitive in price. The cocoa and chocolate manufacturer may juggle weights, prices, and quality, but he cannot escape the high cost of cocoa beans. His business is set up for the sole purpose of dealing, in one way or another, with an unrefined raw material.

High cocoa prices created a “cost squeeze” for manufacturers of chocolate products, especially in the United States where long-established prices for such standard items as a chocolate bar were very reluctantly increased. The prewar 2-ounce Hershey chocolate bar, for example, was reduced to $\frac{7}{8}$ ounce at the old five-cent price before attempts were made to raise the price. In contrast, in Great Britain, under a sweets rationing program, candy bars generally were maintained at their prewar weight and prices were increased.¹⁸

American confectionery makers were less handicapped by the lack of availability of certain supplies than were manufacturers in several countries of Europe and the United Kingdom. Materials in short supply flowed to the United States (dollar) market in the post-war 1940's and were generally absorbed, but not without numerous shifts in the offerings made to a consuming public that was growing increasingly critical. Confectionery makers with their wider range of possible ingredients, combinations, and proportions, had a flexibility not enjoyed by many of the chocolate makers, but were never-

¹⁷ Illustrative of the rise in the prices of raw materials (representing some 91 percent of total ingredient costs) of the confectionery industry in the United States are these percentage increases over the Jan. 1, 1941 level of prices (taken from the *N.C.A. Bulletin*, National Confectioners' Association, April 1948) :

Ingredient	Oct. 15, 1947	Apr. 1, 1948
Cocoa beans	823	606
Peanuts	210	221
Eggs	231	160
Sugar	95	80
Glucose	97	68
Milk	72	47

¹⁸ British consumers seem to attach more importance to standard weights than to standard prices. Manufacturers have discovered that certain prices are more popular than others and have attempted to keep their price schedules in harmony with the preference for definite weight denominations.

theless hit by a decline in the consumption of candy, attributable in no small measure to the high price of the popular chocolate.

More than half of the some 2.7 billion pounds of confectionery produced in the United States each year is made to retail at five cents per unit and the chocolate-covered bar is the leading item, accounting for about 30 percent of this total.¹⁹ In 1948, sales of 379 manufacturing confectioners, representing 75 percent of the industry's estimated total, were broken down as follows:

Product	Percentage of total quantity
Bar goods	
Molded chocolate	11.8
Chocolate-covered	29.9
Other bars	6.1
Other 5¢ and 10¢ specialties	7.9
Package goods	20.6
Bulk goods	
Solid chocolate	1.5
Chocolate-covered	4.8
Other bulk	11.8
Penny goods	5.6
Total	100.0

The year was characterized as one of "little progress for any of the industry other than the chocolate makers."²⁰

Chocolate makers made progress as the cost of cocoa beans declined in 1948 from the peak levels of the latter part of 1947. Even so, solid chocolate products were still twice as expensive as in 1944, whereas chocolate-covered items (with the amount of real chocolate reduced) and other bars and 5- and 10-cent specialties (mostly sugar) had generally increased in price less than half as much. This is illustrated by a sampling from reports of about 290 manufacturer-wholesalers in the United States:²¹

Product	Average wholesale value per pound	
	1944	1948
Bar goods		
Molded chocolate	\$0.270	\$0.556
Chocolate-covered .....	.217	.352
Other bars .....	.229	.271
Other 5¢ and 10¢ specialties .....	.246	.318
Bulk goods		
Nonchocolate .....	.155	.229

¹⁹ Chocolate-covered bars run from 27 to 53 percent of their weight in chocolate. H. R. Chapman in *Cocoa Conference 1949*, p. 11. In periods of high cocoa bean prices the tendency is to reduce the amount of coating, even to perhaps as low as 5 percent.

²⁰ See G. F. Dudik, *Confectionery Sales and Distribution, 1948* (U.S. Dept. Comm., Off. of Domestic Commerce, 1949), pp. 6-8.

²¹ *Ibid.*, p. 21.

If competition had been entirely on a price basis the cheaper non-chocolate items should have been favored.

Apparently the higher cost of confectionery in general, weighted heavily by the popular but expensive chocolate, resulted in a decline in consumption despite the high purchasing power of the population. Dollar sales of confectionery reached the billion-dollar level by 1948 (three times prewar), but tonnage declined from the record output in 1944 of 2.8 billion pounds (20.5 per capita), when about one-fourth of production went to the armed services, to 2.5 billion in 1949 (16.7 per capita).²² Lower cocoa bean prices in that year, however, were expected soon to be reflected in lower retail prices, and bring national candy consumption back to 2.7 billion pounds, or about 18 pounds per capita. But cocoa prices rose again in 1950 and manufacturers were confronted with the same problems as in 1948 when 6- and 7-cent bars encountered much sales resistance.²³

Even more important than low prices to chocolate manufacturers in the United States was adequacy of cocoa supplies. The largest factors in the industry are set up to operate on a volume basis, and unit costs cannot be kept competitively low except with something like capacity production. Their interest in quality seems less keen than it is with many smaller manufacturers and even some of the larger ones abroad. On the most popular mass-produced items, the cost of cocoa beans is a substantial but not the major proportion of the cost of the finished product; hence the concern with possible economies in other directions.

Nevertheless the runaway cost of cocoa beans provided the spur for "a little industrial revolution" in the chocolate industry. Higher costs for other ingredients, combined with rising labor costs, created a situation calling for technological advances. Leading companies in the United States were reported as introducing new equipment as rapidly as possible. In some cases (e.g., the Hershey Chocolate Corporation) such equipment was said to cut labor expense by 60 percent and to increase output by 30 percent.²⁴

In the United Kingdom the cocoa and chocolate industry consists of some 180 large and medium-sized factories and hundreds of smaller ones, all of which have been operating on allocations since 1940. The more progressive companies have resented the "frozen"

²² *Ibid.*, p. 3.

²³ Especially in heavy traffic centers where sales did not fully recover later. In the fall of 1950 some manufacturers were considering the elimination of "nickel" bars for 6 cents in favor of 10-cent units. The average bar at that time was thought to weigh 1 $\frac{3}{8}$ ounces vs. 2 $\frac{3}{4}$ before the war. *Wall Street Journal*, Oct. 3, 1950.

²⁴ *Wall Street Journal*, Dec. 2, 1947.

competitive situation for such an extended period, while the marginal manufacturers have been content with the status quo.

Before the war progressive British chocolate makers had discovered how responsive sales of popular items like milk chocolate were to changes in price. They bent every effort to reduce costs so that selling prices could be established at a level that would stimulate consumption. Economies in production were accomplished and efforts to reduce the cost of distribution were partially successful.²⁵ When the war came along they were obliged to simplify their lines drastically — even more than would be theoretically desirable for efficiency. Such simplification and standardization, however, resulted in a substantial reduction in costs which was to carry over into postwar years and help offset the great increase in ingredient costs.

Prewar per capita consumption of sweets in Great Britain was around 7 to 7½ ounces per week, and the most important single item was the 2-ounce milk chocolate bar which sold at 2*d.* In the late 1940's the same bar sold at 5½*d.*, but very few were on the market. Fresh full-cream milk had become all but unavailable to manufacturers. Although the island's milk production returned to better than the prewar level, the great increase in domestic use of liquid milk in the United Kingdom reduced the quantities formerly available to manufacturers.

Lacking milk, British manufacturers made plain dark chocolate bars and shifted much of their production to "assortments." However, this was not a happy solution: a plant set up for one product could not be used economically for another, plain bars required more of the scarce and expensive cocoa beans than milk bars, and "assortments" involved more elaborate processing and were about 3.5 times

²⁵ A unique and interesting review of the organization and management studies and experiences of Britain's largest chocolate maker, Cadbury Brothers, Ltd. (Bournville), will be found in a short, undated book published by the company under the title *Industrial Record, 1919-39*. The prewar (1938) cost of making and distributing the standard and popular milk chocolate bar (CDM) in Great Britain is broken down (p. 41) as follows:

33% Wholesaling and retailing		Cost of distribution and selling } 45%
33% { Selling and advertising 8% Transport 4%		
	Production costs 21%	Cost of materials and production } 55%
34% Ingredients		

more costly in labor.²⁶ High material and labor costs and uncertain government allocations necessitated frequent changes in formulas and employment. Costs rose and output fell "substantially behind the public's demand for variety as well as quantity."²⁷

Sugar, scarce for several postwar years in the United Kingdom, seemed likely to be abundant as the 1940 decade closed, but cocoa and milk supplies were not expected to be plentiful for some years. Before the war (1939) the West African producer was paid about 23s. 6d. per cwt. for his cocoa and the duty-paid price to a British manufacturer in the United Kingdom was around 35s. to 40s. per cwt. In 1948 producers were being paid 75s. to 80s., over a threefold increase; but the price to manufacturers had gone up to 237s. per cwt., approximately a sixfold increase (see tabulation and explanation on pp. 326-27. And even before the war, the cost of ingredients constituted more than one-third of the retail selling price of standard items.

In attempting to meet the problems generated primarily by the abnormally high cost of cocoa beans, manufacturers everywhere have sought offsetting economies through greater mechanization, simplification of line, and the shifting of production to items not using so much chocolate. But here they have encountered buyer resistance in many instances, and they have been reluctant to move too rapidly in a direction differing from that which they would like to follow if supplies were plentiful and prices right.

IMPORTS AND CONSUMPTION

Over a period of years demand from a variety of sources has developed for the products derived from the cocoa bean, but when these demands cannot be satisfied, over-all consumption of raw cocoa is

²⁶ *Economist*, July 2, 1949, "Chocolate Economics," based on a review issued by the British Cocoa and Chocolate Company and Cadbury Brothers. This group's consumption of milk was 26 million gallons annually before the war and only a fraction of that postwar, even with a new Irish factory using Irish milk.

²⁷ The enormous rise in ingredient costs in Great Britain during the decade 1938-48 is illustrated by the experience of Cadbury Brothers:

Ingredient	1938 or 1939	1948
Raw cocoa (per cwt.)	41/8d.	237/2d
Cocoa butter (per lb.)	8½d.	5/1½d.
Milk (per gallon)	8d.	2/2d.
Sugar (per ton)	£20	£60 15s.
Nuts (per ton)	£96 13s.	£218 14s.

Some of the increases were greater than indicated by the prices, owing to quality deterioration. Milk, for example, was fresh full-cream before the war, whereas in 1948 it was "a jumble of different kinds." Nuts included a greater proportion of almonds before the war but more of the less expensive hazelnuts in 1948.

bound to be adversely affected. Unfortunately it is quite difficult to trace changes in the various segments of demand,²⁸ nor is there any practical method for determining actual cocoa-bean consumption in cocoa-consuming countries.

The Nowell Commission of 1938 commented on the inadequacy of data on cocoa consumption and recommended that the British government take the lead in arranging for international collection of monthly or quarterly statistics from manufacturers. The Commission was

impressed by the number of market witnesses holding the opinion that the lack of adequate trade statistics has given uninformed sentiment an unusually large part in the determination of cocoa prices in the world markets and that better statistical knowledge, more especially of manufacturers invisible stocks of cocoa and of consumption would tend toward a greater stability of price. . . .²⁹

As of 1950 the improvement in the statistical bases of the world cocoa industry and trade remained a project of considerable interest in which little progress had been made.³⁰ More pressing matters, especially problems of production and supplies, occupied the time and energies of those most concerned with cocoa.

Although there is no acceptable substitute for chocolate as a flavoring, imports of cocoa beans into consuming countries are not as reliable a guide to consumption as exports are to production. In addition to the trade in beans (pictured in a general way in Map 11), there is a trade in processed products and a complementary trade in cocoa butter.³¹ Until recently cocoa butter was produced only in im-

²⁸ For a discussion of demand factors for cocoa beans and derivatives, see Chapter 17.

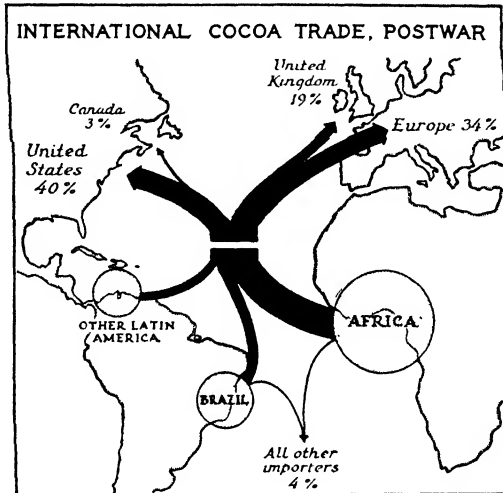
²⁹ Great Britain, *Report of the Commission on the Marketing of West African Cocoa* . . . (Cmd. 5845, 1938), p. 129.

³⁰ Before the war, estimates of world cocoa consumption were privately made by a German fortnightly publication, the *Gordian*, and were accepted for lack of anything better. After the war the International Office for Cocoa and Chocolate turned its attention to international statistics, but has not thus far done very much, and some of the former private sources of information are no longer available. Recently one enterprising member of the Cocoa Association of London attempted to secure information on the breakdown of cocoa-bean consumption in the principal world markets, but found that "in the majority of countries little was ever kept in the way of statistics." C. H. Woodhouse in *Cocoa Conference 1949*, pp. 5-6.

³¹ "The principal importing countries process and export cocoa products and, in some cases, also import products. Other countries import cocoa powder, chocolate, cocoa fat, or confectionery in considerable quantities and also cocoa beans. Some of the small producers, such as Mexico, Colombia, and Cuba, not only produce cocoa beans but also import both cocoa beans and cocoa products. . . . U.S. Dept. Comm., Office of International Trade, *World Trade in Cocoa* (Industrial Series 71, 1947), p. 17.

porting countries; now there are extraction plants in the important producing countries (e.g., Gold Coast, Brazil). And cocoa butter as well as chocolate products are exported from cocoa-bean importing countries.³²

MAP 11



Although wartime and postwar apparent changes in cocoa-bean consumption have been covered briefly in Chapter 12 (along with production and exports), Table 17 gives in greater detail the world situation as revealed by net imports. Despite the deficiencies of import data as a measure revealing demand or consumption in particular categories, they do suggest over-all world utilization. While the data show a decline from the prewar late 1930's in world net imports (and inevitably global consumption), they also suggest growth in demand from a number of heretofore minor importers. Broadening of the demand base should presage future development, once world supplies are ample and prices more conducive to the expansion of consumption. Making no allowance for population growth, aggregate takings of most of the Commonwealth countries have increased over prewar, in part compensating for the slow revival of imports into several

³² Before the war the United Kingdom trade in cocoa butter showed a large import balance, the Netherlands being the chief source of supply. Cocoa butter was a by-product of the Dutch cocoa powder industry. In recent years the British trade in cocoa butter has shown a 2,000-3,000-ton export balance. Total imports in postwar years, however, were only a fraction of the 10,000-ton level of 1938-39. Net exports in 1950 reached 4,850 tons.

western European countries. Of the latter group, in the late 1940's, only Belgium, Switzerland, Spain, and Sweden seemed to be importing cocoa in larger volume than prewar. In addition to Canada, Australia, and the Union of South Africa, greater absorption was also recorded for Argentina.

TABLE 17.—WORLD NET IMPORTS OF COCOA, 1935-49*

Area	Thousand metric tons			Percentage of total		
	1935-39 Average	1940-44 Average ^a	1945-49 Average	1935-39 Average	1940-44 Average	1945-49 Average
United States	269.8	264.8	271.0	39.0	48.3	45.2
United Kingdom	108.5	142.4	114.4	15.7	26.0	19.1
Continental Europe ^a . . .	275.6	80.8	146.0	39.9	14.7	24.3
Germany }	82.3	16.4	....	11.9	3.0	...
Austria }						
Netherlands	66.3	5.5 ^b	35.0 ^b	9.6	1.0	5.8
France	44.6	24.4	44.0	6.4	4.5	7.3
Belgium (Luxem- bourg)	11.0	1.0	11.8	1.6	.2	2.0
Czechoslovakia	10.8	.6	....	1.6	.1	...
Switzerland	8.8	7.2	9.9	1.3	1.3	1.6
Italy	8.7	3.2 ^b	6.4 ^b	1.2	.6	1.1
Spain	8.2 ^b	13.4	13.0 ^b	1.2	2.4	2.2
Poland (Danzig) . . .	6.8	....	....	1.0	...	...
Sweden	6.7	6.0	8.2	1.0	1.1	1.4
Norway	3.4	1.0	3.2	.5	.2	.5
Other	18.0	....	....	2.6	...	...
Canada	12.5	19.1	20.5	1.8	3.5	3.4
Australia	6.8	11.6	11.5	1.0	2.1	1.9
Argentina	5.1	6.6	....	.7	1.2	...
Union of South Africa .	1.2	6.0	....	.2	1.1	...
All other	12.0	16.4	....	1.7	3.0	...
World ex-U.S.S.R.	691.5	547.7	600.0	100.0	100.0	100.0

* Data from Appendix Table XI.

^a Data for many European countries, 1940-44, incomplete and otherwise not comparable.

^b Four-year average.

Optimists expect aggregate net imports of cocoa beans to exceed the prewar average in the next few years and also anticipate that some of the formerly important European importers will improve their relative standing without, however, decreasing aggregate use in the Americas and the rest of the world (p. 378).

Shifts in the forms of consumption of chocolate and cocoa products during recent years of short supplies have undoubtedly occurred

on a large scale.³³ Yet most persistent demand seems to be concentrated on a few items which become unacceptable to consumers with dilution in quality beyond a certain point. Some manufacturers have followed a policy of adhering as closely as possible to earlier standards even at the sacrifice of volume, while others have attempted to stretch their limited and costly raw materials by the use of various forms of adulterants. Perhaps the secondary users—the confectioners—have gone further in this direction than the cocoa and chocolate makers.³⁴

Sweetened commercial chocolate requires only half the amount of cocoa beans as unsweetened; a milk or nut bar one-fourth less than a solid sweet chocolate bar; and a chocolate-coated bar takes, of course, only a fraction of the amount of beans needed for a solid bar.³⁵ In

³³ Monthly sales of candy and chocolate manufacturers in the United States during recent years have shown considerable variation, due largely to fluctuating prices but also to changes in the form of output. Beginning in 1948, lower prices and more plentiful cocoa supplies permitted processors to substantially increase sales of consumer-type confectionery items (largely solid chocolate bars), apparently at the expense of candy manufacturers whose poundage was off slightly even though dollar sales were up a little. See U.S. Dept. Comm., *Industry Report: Coffee, Tea, Cocoa, and Spices*, December 1949, p. 14; *ibid.*, March 1949, p. 9.

³⁴ European confections are of a distinctly different character from those in the United States. In Europe solid chocolate far outranks other types of confections (boiled sweets), one estimate indicating that “probably 80 percent of consumption is solid chocolate whereas in the United States it is about 10 percent.” (*N.C.A. Bulletin*, October 1949.) In postwar years candy consumption in Europe was growing, exceeding prewar consumption in many countries.

³⁵ The cocoa-bean content of certain products, as recorded by the United States Department of Agriculture, is given below. These conversion factors “cannot be considered absolute in any sense but are averages representing the practices of the industry at the present time” (1947).

For each pound of	Pounds of cocoa beans required
Cocoa butter	2.500
Breakfast cocoa (78% cocoa, 22% fat)	2.083
Unsweetened commercial chocolate or pure chocolate liquor (used by bakers and confectioners)	1.250
Sweet chocolate bars .....	.800
Sweetened commercial chocolate (usually 50% liquor, 50% sugar; used by bakers and confectioners) .....	.625
Chocolate bars (solid, milk, or nut) .....	.600
Chocolate syrup (pure liquor estimated at 42%) .....	.525
Chocolate bars or candy, unspecified (“chocolate candy” requirement for commercial export) .....	.316
Chocolate pudding or dessert powder (breakfast cocoa estimated at 15%) .....	.312
Ovaltine .....	.312
Chocolate-coated bars .....	.125

A weight loss of 20 percent is incurred upon shelling and roasting cocoa beans. The remaining 80 percent is chocolate liquor, varying considerably in composition according to type of bean used, “but for the industry as a whole it is estimated that the

not all cases, however, have the ingredients necessary for mixing and minimizing the role of chocolate been readily available in adequate quantities even at advanced prices.

Users of cocoa and chocolate products, in the production of a variety of goods flavored in varying degree with chocolate, thus have some choice in the manner in which they attempt to stretch scarce or expensive supplies of cocoa beans. But for many an ultimate consumer a mere suggestion of chocolate flavor, or chocolate combined with alternate ingredients resulting in a less desirable or less familiar taste, does not sufficiently satisfy to warrant continued purchase. Only when bean supplies are adequate, and prices permit generous or customary use of chocolate in items that have long since established their popularity with consumers, will the industry be in a position to resume its growth. After that, further progress can be expected with the improvement in quality of products to the level already attained in some European countries, and the education of consumers' taste to an appreciation of such products.

MARKETING OF WEST AFRICAN COCOA³⁶

In the evolution of the world cocoa and chocolate industry, production and the marketing of each season's crop was long taken for granted. Only in relatively recent years have problems arisen that have made business interests and governments abandon their complacency of the earlier 1930's. The focus of this new concern was West Africa, the producing region of the world that made possible the great growth and development of the chocolate industry as it is known today.

Looking back, one manufacturer described the British attitude—one that was far more informed and interested than anything that could be found on the American side:

In the late thirties there was still cocoa to meet the expansion. The Gold Coast was reaching its production peak. Quality was good. Shipments were regular and efficient. There was a full year's supply of raw cocoa in our stores

liquor has a cocoa butter content of about 48 percent and a cocoa powder content of about 52 percent." U.S. Dept. Agr., Production and Marketing Administration, *Conversion Factors and Weights and Measures for Agricultural Commodities and Their Products* (August 1947), pp. 73-74.

³⁶ Numerous discussions of the problems of marketing West African cocoa are available. Basic is the Nowell Commission Report (*Report of the Commission on the Marketing of West African Cocoa . . .*, Cmd. 5845, 1938). Briefer, but more recent, authoritative accounts will be found in Office International du Cacao et du Chocolat, *Conférence Internationale du Cacao . . .* (London, 1946), pp. 109-21; and the Cocoa, Chocolate and Confectionery Alliance, Ltd., *Cocoa Conference 1948* (London), pp. 70-84.

or at the ports almost at all times. Prices also were favorable for an expansion of this business and this industry. Perhaps prices were too favorable. We could deal freely on any world market; cocoa butter in any quantity could be bought from Holland.

Halcyon days these were. We seem to have been in paradise without knowing it.

There was trouble in the trees and there was also trouble in the minds of the Africans. . . . It was quite clear that things were not right on the farms in the Gold Coast *and* there was need of a new marketing build-up on a fair basis. These things—disease and discontent—however, at that time cast no deep shadow on our paradise . . . the effect . . . was hidden in the war years. . . .³⁷

The spectacular rise in the cocoa production of West Africa was not accompanied by a corresponding development of marketing arrangements, and in the 1930's conditions became increasingly unsatisfactory, especially from the producer's standpoint. As output increased, the early primitive methods of collection and sale gave way to a system of numerous middlemen. Their power soon became established, and both sellers and buyers depended upon them to facilitate their own operations. The middlemen simultaneously financed growers and bought for the trading companies.

As cocoa buying, storing, and shipping became an increasingly important activity of the trading companies, keen rivalry developed for the middleman's services. Abuses became common and competition so fierce that truces were arranged in the form of buying agreements which, in turn, led to trouble with native producers and a hold-up of supplies in 1937/38.³⁸

So acute was the competition between the firms that they often operated at a loss. The curious result was that, although America was the biggest consumer of cocoa in the world and took an appreciable proportion of West Africa's production, there were no American buyers of cocoa in the Gold Coast—the American manufacturers found it was actually cheaper to buy West African cocoa in the New York market.³⁹

Cocoa marketing before the war was essentially competitive and free, yet quite underdeveloped in comparison with the systems for

³⁷ Hood, *World Supplies of Raw Cocoa*, pp. 3-4.

³⁸ There are about 16 trading firms in British West Africa, including five chocolate-manufacturing companies who buy cocoa but do not sell trade goods. At the time of the hold-up, 13 European firms handled about 98 percent of Gold Coast cocoa shipments.

³⁹ The United Africa Company, Ltd., *Statistical and Economic Review*, September 1948, p. 16. In United States cocoa circles this is given as one reason why American manufacturers showed so little interest in their supply sources before the war.

marketing most basic agricultural products. As a factor in world trade cocoa was relatively a newcomer, its price fluctuated over a far wider range than for other primary commodities, and

speculative neurosis ran through the whole of the trade, right down to the cocoa farmer, and caused considerable disturbances, and certainly dissatisfaction, at the buying end in Africa, not only amongst the farmers but also as between the firms which had to tackle the very onerous and thankless job of taking the crop off the farmers and offering it on world markets. . . .⁴⁰

The 1937 Buying Agreements among the majority of trading firms and manufacturers sought to bring order into marketing arrangements and to eliminate competition. They applied to both the Gold Coast and Nigeria and were to run for four years; but immediately they ran into trouble. World cocoa prices dropped sharply, after the speculative run-up of early 1937, and low prices were mistakenly associated in the minds of some with the introduction of the Agreements. The middlemen and money lenders, seeing their profits threatened, promoted an almost complete hold-up of supplies from the Gold Coast for several months.

The so-called Nowell Commission was charged with investigating the hold-up and at the same time looking into the whole question of the marketing of West African cocoa. Its 1938 report was a landmark in the evolution not only of cocoa marketing in British West Africa but in complex political relationships. Proposals that were to follow in later years, and measures that were adopted during and after the war, essentially stem from the Commission's investigation.

Developments leading to the appointment of a commission by the Secretary of State for the Colonies, at the instance of the governors of the Gold Coast and Nigeria, are described in the covering letter to the report:

Early in November, 1937, as a result of Buying Agreements entered into in respect of Gold Coast and Nigerian cocoa by all but one of the important European firms trading in the two dependencies, a general hold-up of cocoa, accompanied by a boycott of certain European goods, was started by Gold Coast and Ashanti farmers. The hold-up and boycott were so effective as to bring both the export and the internal trade in the Gold Coast practically to a standstill; only small quantities of cocoa were marketed, and imported merchandise accumulated unsold in the firms' stores and in the Customs sheds. In spite of efforts made by Government to effect a compromise, neither the farmers nor the firms appeared to be prepared to withdraw from the position which they had taken up. No serious agitation against the Agreement occurred

⁴⁰ E. Melville, "The Marketing of West African Cocoa," in *Cocoa Conference 1948*, p. 71.

among producers in Nigeria and the Nigerian crop was marketed as usual: but in the Gold Coast the deadlock continued into the spring of 1938. . . .⁴¹

Agreements between the principal European buying firms to control the purchase and sale of native produce (e.g., palm oil, palm kernels, groundnuts) had been more common in Nigeria than in the Gold Coast; hence the cocoa-buying arrangement aroused less opposition in that colony.⁴²

Careful examination of the case for and against the Agreements brought the Commission to the conclusion (p. 146) that in the Gold Coast the hold-up

began and remained an essentially popular movement. It arose chiefly out of the Africans' fear of monopoly, intensified by the suddenness with which the Agreement was introduced, by a lack of frankness about its provisions, and by a fall in prices that occurred simultaneously with, although not as a result of it.⁴³

It further concluded (pp. 148-51) that, despite much to be said for them, "the Agreements should be finally withdrawn."

Although the Commission did not object to the attempt by the trading companies to establish greater order in cocoa marketing, it did not approve of the methods employed. It was thought that the unorganized grower was not fairly treated and was rightly suspicious. As a substitute for the Buying Agreements, the Commission outlined a plan (pp. 151-74) for reorganizing the marketing of cocoa in both the Gold Coast and Nigeria.

Even if the Commission's recommendations had been feasible and accepted at the time, the advent of the war prevented them from being put into effect. The state of the West African cocoa trade was clearly regarded as unsatisfactory, and the Colonial Office thought the situation "dangerous," because economic difficulties always have repercussions in the political field.⁴⁴ What was done to improve matters both during and after the war is considered in more detail in Chapters 15 and 16.

Today the cocoa producer may sell to a variety of intermediaries

⁴¹ *Cmd. 5845*, p. 1.

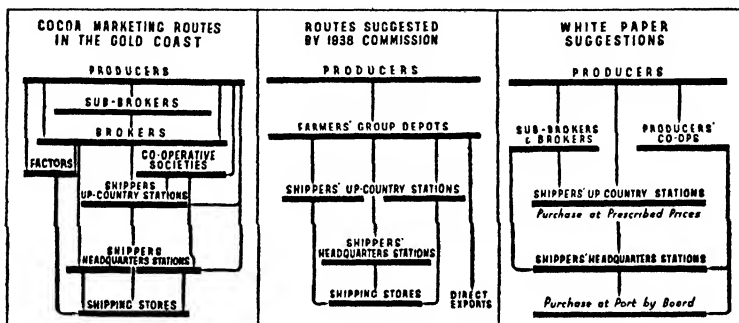
⁴² *Ibid.*, p. 82. Buying and selling pools were nothing new in the West African cocoa trade. Agreements and "understandings" of the type that would be illegal in the United States had been frequent since the turn of the century. *Ibid.*, pp. 48-49.

⁴³ *Ibid.*, p. 146.

⁴⁴ Melville, *op. cit.*, p. 71. An "amazing" feature of the 1937 hold-up, at least to the Colonial Office, was that there was nothing "amounting to bloodshed." In an apparently unorganized industry, cocoa, the only cash crop for many small farmers, was withheld from the market for a year without obvious use of force.

—subbrokers, brokers, factors, local co-operative societies—or direct to upcountry stations of licensed buyers. However sold initially, most of the crop is directed to the upcountry stations, as the entire crop is purchased by licensed buying agents operating for the marketing boards at prices fixed by them seasonally. Up to 1939 the chain of cocoa marketing in the Gold Coast was long and tangled, as suggested by Chart 13. Today it is relatively simple, although not precisely along lines suggested either by the 1938 Commission or the 1944 White Paper (pp. 339–40, 352 ff.).

CHART 13.—COCOA MARKETING ROUTES IN BRITISH WEST AFRICA



Changes that have been made in the marketing system have resulted in a quite different composition of the British import price. Thus the price of Gold Coast cocoa in the United Kingdom at typical periods before the war and in 1948 was built up as follows:⁴⁵

Item	<i>(Shillings and pence per cwt.)</i>	
	Prewar	1948
1. African grower	21/9	74/8
2. Buying and handling from producer to ship	4/9	7/8
3. Shipping, loading and landing dues	2/4	5/-
4. Gold Coast export tax	1/2	1/2
5. United Kingdom import duty	11/8	11/8
6. West African marketing boards ...	....	134/-
7. Ministry of Food .....	....	3/-
Total	41/8	237/2

The most important change from prewar is item 6, the West African marketing boards. These, according to the source cited, “collect the

⁴⁵ From chart appearing in *Bournville Works Magazine*, March 1948, XLVI.

margin between these costs and the world price. Under the prewar marketing system the speculator would have taken most of the margin." Commenting further, the intention of the Ministry of Food (item 7) is to work on a "no profit, no loss" basis. This part of the story of cocoa marketing in West Africa will, however, begin to unfold as consideration is given specifically to the war and postwar periods in the following pages.

CHAPTER 15

IMPACT OF THE WAR ON COCOA

World War II was primarily responsible for today's radically changed world cocoa situation and the impact of the war on cocoa will probably continue to be felt for some years. The rapid expansion of exports from West Africa and Brazil during the interwar period came to a halt, organizations were set up to handle or control the entire crop of both of these major producing areas, and similar agencies were destined to become a new feature of the postwar period. In contrast with the prewar position of oversupply and very low prices, the end of the war, and removal of controls in consuming countries, revealed a situation of short supply which soon led to extremely high prices.

Wartime shipping and marketing difficulties, lack of consumers' goods in producing countries, and the need for stressing strategic goods and services made for neglect of cocoa growing and permitted the spread of diseases. The resulting substantial shrinkage in production was the more serious because, meanwhile, demand had increased. Chocolate and cocoa products were officially regarded as essential items of diet, were included in both emergency and normal rations of the services, and were later used for relief and rehabilitation in Europe. Their popularity grew as output was shrinking, but this is only part of the story. Much of it must be told in terms of wartime events and necessarily in terms of controls.

BRITISH CONTROL OF WEST AFRICAN COCOA

Soon after the outbreak of the war the British government undertook to control West African colonial sources of cocoa supply and to guarantee growers against loss of markets. The government became the sole buyer of the entire cocoa output of the colonies, assumed the risk of losses on resale, and pledged that profits eventually realized would be distributed to producers directly or indirectly through colonial governments "for expenditure on objects of benefit to them." The form of control underwent several modifications during and after the war, but one general plan was followed. Actual purchasing was done originally by the Ministry of Food, then by the West African

Cocoa Control Board, and later by the West African Produce Control Board.

Considerable significance may be attached to the British wartime experience with cocoa control, which was a logical development from prewar marketing proposals. The plan used was a forerunner of post-war schemes which became a major feature of a new British colonial policy. The need for some kind of government intervention was clear in view of the importance of cocoa to the economy of West Africa.

Cocoa is the mainstay of thousands upon thousands of peasant farmers . . . and provides a livelihood for countless numbers of wage-labourers who are employed by the farmers in the maintenance of their farms and the harvesting of the crops. Cocoa is the great provider of external purchasing power, and, in the case of the Gold Coast, the budgetary position of the Government depends to a very large degree on the prosperity of the cocoa industry.¹

The cocoa situation in 1939.—War fell on Europe at a time when manufacturing consumers of cocoa in importing countries were in a fairly comfortable position, but producers were already weakened by recent trade developments. They, like coffee growers, were highly vulnerable to new situations that war was bound to create. The United States and Great Britain, which had been taking over half of world supplies, apparently held stocks equivalent to almost a year's requirements.² Germany, the third most important market for cocoa, was shut off immediately. Thus, altogether, about two-thirds of the world market need not, or could not, import cocoa for many months to come.

After the boom of 1936/37, cocoa prices were back to a level only slightly higher than that prevailing in the depression years of the early 1930's. Although crops promised to be smaller, there was clearly a far larger supply than might reasonably be expected to be marketed under wartime conditions. The cocoa producer's position was weak and his prospects dim.

The timing of the outbreak of war could not have been worse for the cocoa producer. Late fall is the season when the bulk of the world's crop is harvested and shipped overseas, but buyers, who customarily arrange for their requirements a year ahead, do so only with

¹ Great Britain, *Report on Cocoa Control in West Africa, 1939-1943, and Statement on Future Policy* (Cmd. 6554, September 1944), p. 2; hereafter cited as *Cmd. 6554*.

² Perhaps they were larger. Cadbury Brothers, for example, held nearly two years' stock of raw cocoa at the close of the 1938/39 harvest, "with other things in proportion." Their "purchasing policy was copied by other firms." W. M. Hood, *Supplies of Raw Materials* (Address at a Conference of Sales Representatives of Cadbury Brothers, Ltd., Bournville, May 31, 1946), p. 7.

reasonable assurance of reselling during this period. Under conditions prevailing in the fall of 1939 it was not likely that buyers would contract for more cocoa than could be resold immediately. The prospect was for lower prices to producers.³

Clearly, since the merchant firms were unable, in view of the uncertainty of disposal, to undertake the risk involved in purchasing the entire crops, there was no alternative but for His Majesty's Government itself to undertake this risk and to purchase the crops of the Gold Coast and Nigeria. The merchant firms themselves realised the necessity for this action . . . and their co-operation assisted in the smooth working of the scheme.⁴

Introduction of controls.—Because quick action was essential and no other machinery for purchasing was readily available, it fell to the lot of the Ministry of Food⁵ to inaugurate the control scheme for British West Africa. This was done “with the understanding that, since a main reason for the purchase [of the entire cocoa output of the Gold Coast and Nigeria] was the maintenance of the social and economic well-being of the West African Colonies, the Colonial Office should share in the framing of general policy.” A subdivision of the Ministry was set up in consultation with the Colonial Office, the treasury, and the merchant shipping and manufacturing interests in the trade.⁶ Operations were begun in January 1940 for the 1939/40 season (October 1 to September 30) already well under way.

Under the control system set up, actual purchasing of cocoa was divided among firms already engaged in the trade who became agents of the government and were compensated for their services according to a schedule of costs and commissions.⁷ Prices to be paid producers were the responsibility of local governments and were determined, apparently, in consultation or agreement with the London authorities. The controlled price related to the port of shipment. The price received by farmers in different areas was figured precisely by deducting transportation, brokerage, and similar costs according to a pub-

³ Reference to Chart 12 in Chapter 12 may be found helpful in connection with some of the discussion in following pages.

⁴ *Cmd. 6554*, p. 2.

⁵ “Owing to the fact that production greatly exceeded United Kingdom requirements, this transaction did not strictly fall within the responsibility of the Ministry of Food.” *Ibid.*, p. 3.

⁶ Ady, “Bulk Purchasing and the Colonial Producer,” p. 322.

⁷ Allocation was by a quota system based upon past performance, usually the individual shipper's average 1936-39 share of the business. Newer and smaller shippers were sometimes at a disadvantage under this “freezing” of the competitive pattern, and some adjustments were made in quotas after the first year of operation, but no completely new entrants into the trade were permitted. See *Cmd. 6554*, p. 7.

lished schedule.⁸ From the standpoint of market information and short-term stability of prices, farmers were much better off than before the war, when inequities abounded owing to imperfections in the marketing machinery.

Operations proceeded satisfactorily during the early period of control under the Ministry of Food. Prices offered producers in the initial purchasing agreement were those prevailing in West Africa at the time control was introduced, and were approximately those ruling at the outbreak of the war. "The disposal of the 1939-40 crop proved to be rather easier than had originally been expected. The crops fell below the original estimates, whereas sales to Canada and the United States exceeded expectations, as did the allocation of freight space for the United Kingdom. . . ."⁹ After the fall of France in mid-1940, it was decided to purchase some 12,500 tons of French Cameroons cocoa, "as economic first aid to those territories which had rallied to the cause of Free France."

Sales made during the first season of control were of main-crop cocoa, the intermediate crop and lower-quality cocoas being destroyed on purchase. The bulk of the cocoa purchased from the French also had to be destroyed because of inability to ship it. The first season therefore showed a net operating deficit of £208,548, despite the "moderately satisfactory" sales.

CREATION OF WEST AFRICAN COCOA (PRODUCE) CONTROL BOARD

Toward the end of the 1939/40 season (August 1940), responsibility for cocoa control was transferred from the Ministry of Food to a newly created organization under the Colonial Office known as the West African Cocoa Control Board (later, in 1942, the West African Produce Control Board). This Board became the principal for both purchases and sales, the Ministry of Food becoming a customer. It continued, with some modifications in detail, the operating techniques that had been employed earlier, and undertook to purchase cocoa in the French Cameroons on the same terms as in British territory.¹⁰

⁸ To the fixed port-of-shipment price other costs were added, e.g., export duties, lighterage and harbor dues (according to another schedule), to arrive at the f.o.b. price. Costs from then on depended upon actual charges incurred for ocean freight, insurance, and so on, to the final port of destination. ⁹ *Cmd. 6554*, p. 3.

¹⁰ *Ibid.*, p. 4. Relatively unimportant sources of supply were excluded from the control scheme, e.g., Sierra Leone. Similarly, British colonies producing cocoa in other parts of the world, e.g., Trinidad and Ceylon, were excluded, the only restriction on sales in these islands being an export licensing arrangement designed to keep supplies to the reduced level of world consumption.

During the 1940/41 season an "unexpectedly satisfactory" amount of cocoa was shipped despite ocean sinkings, a shortage of shipping tonnage, and the fact that in May 1941 the United States had placed a ban on shipments in order to have space for more essential cargoes from West Africa. The season opened with poor prospects for disposal of the new crop, or even a large part of it, but 343,609 tons were shipped and sold, and only about 5 percent of total purchases (all off-quality) was destroyed. By following a policy of chartering any available tonnage, even at high cost, and shipping every possible ton of cocoa away from Africa, "without considering too closely whether profitable sales would necessarily follow," the Board was handsomely rewarded when shipments from West Africa to the United States were stopped and it could sell stocks built up earlier in New York. The season ended with a surplus from trading operations of £2,040,473. Its size was partly attributable to reductions in prices paid to growers. (Price policies followed by the Board during the war period are discussed below.)

Entry of the United States into the war, late in 1941, inevitably affected the West African Cocoa Control in a number of ways. It further tightened shipping in 1942, and led to changes in the system of control. At the close of the 1941/42 season, the Board had been able to ship less than half of its purchases, only 170,000 tons.¹¹

Although "much" additional storage was provided in West Africa, large quantities of cocoa, including all of the intermediate crops, had to be destroyed. Prices paid to growers had been slightly advanced for the season, but were still low, for the Board continued to follow a "cautious" price policy. The ban on shipments to the United States was still in force, the submarine menace limited shipments from such important surf ports as Accra, and generally 1942 proved to be the most difficult of the war, ending in a net loss of £314,051 for the 1941/42 season.

Changes in form of control in 1942.—The West African Cocoa Control Board was enlarged during the 1941/42 season into the West African Produce Control Board, which handled purchases of other West African commodities, mainly groundnuts (peanuts) and palm produce, in addition to cocoa. The cocoa control had been inspired primarily as a relief measure but, in May 1942, considerations of supply led to the decision to utilize the machinery for other purposes. Later in the year, after the start of the 1942/43 season, "important"

¹¹ The official narrative does not check with the Board's accounts, the latter showing shipments of 247,700 tons (Table 18, p. 334). Possible explanation: carry-overs.

changes were made in the system of cocoa control in view of the fact that selling had become a matter primarily of intergovernment trading.

In the early years of West African cocoa control, established merchants and shippers acted as the Board's agent, from original purchase to final sale. As the war progressed, the need was greatly lessened for representation beyond shipping ports in West Africa. Ultimate buying of cocoa had become channeled more and more through a few government agencies, such as the Ministry of Food in Great Britain and the Commodity Credit Corporation in the United States. The Board, accordingly, decided to dispense with shippers' services after the f.o.b. point.

Purchases of cocoa by the Board in the Gold Coast declined sharply in the 1942/43 season, for reasons "not clearly apparent,"¹² but total shipments from West Africa were larger than for any season thus far except 1940/41. Although the season opened with "a very heavy carry-over from 1941-42," the ban on shipments to the United States had been lifted in August, and old-crop stocks were cleared by early 1943. Thereafter shipping improved and, although the Board still held some 110,000 tons unshipped in August 1943, nearly all of this was lifted by the end of the year. The fourth season of control "ended a great deal more favorably than had seemed at all probable," with a profit of £2,158,379.

A summary of West African cocoa control operations during the war period is provided by Table 18. Chart 14 shows in more detail pertinent features of the Board's operations, as they applied to the Gold Coast and Nigeria, for the entire period of its life, ending with the 1946/47 season, two years after the end of the war.

During the fifth (1943/44) season of control, destruction and local utilization became relatively unimportant. The situation had so changed (and profits from operations of £2,969,190 were the highest yet) that the Board began giving consideration to modifying its purchase-price policy, and suggested other changes in the form of control, discussed below.

The final wartime season of control operations (1944/45) was of

¹² "Apart from disease . . . a variety of factors was probably involved, including the fact that the season opened later than usual and the discouraging effect of the large quantities of cocoa which had to be destroyed. A further reason was that in the Gold Coast, more than elsewhere, much of the actual harvesting is normally performed by wage labour, and the strong demand for labour for essential military works inevitably reduced the numbers available for employment on the farms." *Cmd. 6554*, p. 5.

a nonemergency character. Prices to producers were raised substantially to conform more closely with price ceilings in effect in the United States, but the Board's operations still resulted in another large profit of over £2 million.

TABLE 18.—SUMMARY OF WEST AFRICAN COCOA CONTROL OPERATIONS, 1939-45*

Season	Purchase prices ^a (£'s per ton)			Purchases ^b (Thousand tons)	Shipments ^c (Thousand tons)	Destruction and local utilization ^d	Net gain or loss from operations (Thousand £'s)
	£	s.	d.				
(1) 1939/40 ...	15	17	4	276.1	235.4	40.8	(-) 208.5
(2) 1940/41 ...	13	1	4	360.1	343.6	16.5	(+) 2,040.5
(3) 1941/42 ...	14	18	8	378.7	247.7	131.0	(-) 314.0
(4) 1942/43 ...	13	1	4	352.0	284.0	68.0	(+) 2,158.4
(5) 1943/44 ...	13	1	4	295.2	289.8	5.4	(+) 2,969.2
(6) 1944/45 ...	22	8	-	357.5	334.7	22.8	(+) 2,093.3

* Based on data in Appendix Tables I-V of Great Britain, *Report on Cocoa Control in West Africa 1939-1943, and Statement on Future Policy* (Cmd. 6554, September 1944), and Appendix II of Great Britain, Colonial Office, *Statement on Future Marketing of West African Cocoa* (Cmd. 6950, November 1946).

^a Purchase prices (per ton naked ex-sale port of shipment for 1939/40 through 1942/43; at railway buying station thereafter), for Grades I and II of the Gold Coast main crop, taken as representative.

^b Total of main and minor (intermediate) crops of the Gold Coast, Nigeria, French Cameroons, and Sierra Leone (1943/44 and 1944/45). Except for 1939/40, tonnages purchased represent total crops.

^c To the United Kingdom and Dominions, the United States, and small quantities to "others."

^d Mostly destruction until 1943/44, but some processing of cocoa butter. The Board reported sales of cocoa butter at £242,000 in 1942/43, and £94,180 in 1943/44. The figure given for the 1944/45 crop represents French Cameroons cocoa sold back to buying agents.

WARTIME CONTROL POLICIES, 1939-45

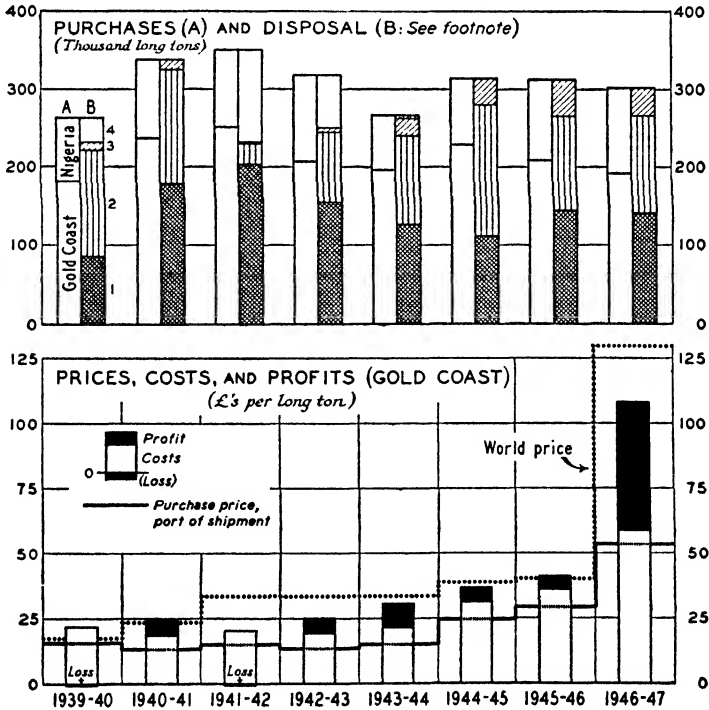
Policies pursued by the Board with regard to purchases, shipments, sales, storage, destruction, and similar matters during the war are chiefly of interest today in helping to explain the present postwar version of West African Cocoa Control, established in 1947 and discussed in Chapter 16. Proposals for a postwar control were originally submitted in September 1944, but two years elapsed before a modified scheme was agreed upon. In the interim, wartime policies of the Board figured prominently in the controversy stirred up by some of the provisions of the initial proposals.

Purchase-price policy.—Perhaps inevitably the most controversial of the Board's wartime activities revolved around price policies, especially those relating to purchases. The official explanation of the

“cautious” low-price policy followed for 1939/40 to 1942/43 (and continued in 1943/44) is given in the White Paper proposing continuation of controls in the postwar period:

the Board was charged, . . . with maintaining the West African cocoa industry at a time when the normal operations of the market would undoubtedly have ruined it. . . . The Board was . . . also obliged to be mindful of the fact that it was operating with funds provided by the United Kingdom taxpayer. . . . Prices were, . . . generally fixed at a low level . . . prices, if low, were certain, . . . in the Gold Coast, a system of price “flattening” . . . [put] the up-country producer . . . much less at a disadvantage than previously . . . after the outbreak of war with Japan—other West African commodities, notably oilseeds, palm oil and rubber, sprang into prominence, and it was important not to divert effort from their production to that of a commodity which was for long in surplus supply. . . . a most careful watch has been necessary on the danger of inflation, which arises from heavy purchases . . .

CHART 14.—OPERATIONS OF THE WEST AFRICAN (PRODUCE) CONTROL BOARD, 1939/40 TO 1946/47*



* Data from *Cocoa Conference 1948*, pp. 94-97, October-September years. Disposal of purchases as follows: 1-3, exports to United Kingdom and Dominions, to United States, and to other countries, respectively; 4, local utilization, destruction, and coast losses.

and full employment . . . at a time when the supply of consumer goods is necessarily very limited.¹³

Considering the uncertainties of war, the Board's purchasing policies seem amply justified, and genuine benefits accrued to cocoa farmers; yet there is no denying their adverse long-term effects on the West African industry. Through control, the industry was able to survive the war, and low prices successfully diverted labor to more essential wartime activities. Yet the unpromising outlook led many farmers to abandon their trees, and provided very little incentive for efforts intended to check the spread of diseases and pests or to the maintenance of soil fertility. Replanting came to a standstill.

Despite the low level of prices paid by the Board during the first four years of the war, the stabilizing aspects of the scheme were highly advantageous to cocoa farmers.

Whereas violent price-fluctuations had characterised the pre-war years, wartime changes in farmers' income have been due chiefly to changes in the crop. Further the share of farmers' income in the total value of output has risen, not only because of the limitation of brokers' and shippers' margins, but also through the stabilisation of the market and the greater spread of price-information.¹⁴

Although easily justifiable as a wartime expedient, the Board's low-price policy did not escape criticism later, when fears were aroused that the government's postwar intentions involved a continuation of low prices, as well as certain trading procedures distasteful to African farmers. Toward the end of the war, and following the reopening of Atlantic sea routes, pressures had built up to a point where the Board decided, in effect, to abandon its cautious policy. Prices to growers were substantially raised for the 1944/45 season from £13. 1 to £22. 4 per ton. By this time, however, the submarine menace had greatly decreased and the general outlook was clearer and more favorable.

Sales-price policy.—Criticisms of the Board's price policies on sales, on the other hand, were limited during the war, if not in the postwar period (p. 363). Prices were generally weak in the United States from the outbreak of the war until 1941, but rose in the United Kingdom. As supplies became shorter and shipping difficulties increased, demand improved and the Board's resale prices rose. In fact, the Board reports that "in nearly all cases, the price realized represented a substantial profit per ton over the purchase price," although in some years not all of the purchases could be shipped.¹⁵

¹³ *Cmd. 6554*, pp. 7-8.

¹⁴ *Ady, op. cit.*, pp. 327-28.

¹⁵ *Cmd. 6554*, p. 8.

Cocoa prices were free in Great Britain until August 1940 and in the United States until December 1941, but the levels at which they were frozen in the latter country were substantially higher than those prevailing at the outbreak of the war, and higher than could have been anticipated earlier. In 1940 the British wholesale price for cocoa was fixed at £35 a ton, but the Board sold to the Ministry of Food "at the free market price current in the United Kingdom at the date of the assumption of internal control by the Ministry." Prices elsewhere were still free at this time and, as they tended to rise, a greater and greater premium was established over the prices received on sales to the Ministry.

Finally, a formula was evolved, which went into operation with the 1942/43 season, under which "the price received by the Board from the Ministry in any one season was to be the average price received by the Board in the previous season for ALL sales, including those to the Ministry of Food."¹⁶

Under the sales-price formula worked out between the Control Board and the Ministry of Food there was, of course, a time lag which was advantageous to the British cocoa consumer in a period of rising prices. The British government, however, had accepted the position of residual buyer, and "the level of U.K. purchases was determined largely by the extent to which shipment was possible not only to Liverpool but also to New York, and elsewhere. In fact Great Britain accepted cocoa in excess of her usual requirements . . . Much of the surplus tonnage has been utilised for the manufacture of margarine from cocoa butter."¹⁷

The wholesale price paid by manufacturers in both the United Kingdom and the United States was fixed at £45 per ton in 1942, where it remained throughout the war. This was more than was paid to the Board and the difference was credited to the consuming country. After 1944, however, residual purchasing became unnecessary, as shipping routes were opened up again, and the Ministry of Food paid the Board more than the controlled price to manufacturers. Without price ceilings, world prices of cocoa might have gone to much higher levels, as they did after the war when controls were removed. As it was, prices paid for cocoa by both Great Britain and the United States followed roughly the levels for other foodstuffs purchased.¹⁸

Since the link between the world price for cocoa and that received by the producer had been broken, the control authorities could have

¹⁶ *Ibid.*

¹⁷ *Ady, op. cit.*, p. 326.

¹⁸ *Ibid.*, p. 327, Table IV.

allowed selling prices to go to higher levels without damage to the West African farmer. This was one of the features of the scheme that marked it

as a new experiment amongst colonial institutions . . . one of the first instances in which a consumer country has underwritten some part of the risks involved in price-guarantees. While consumers have gained through controlled prices, producers have benefited from price stability even though at purchase price-levels so low that the Control has accumulated large financial reserves. . . .¹⁹

Destruction, storage, and local processing.—Nearly one out of every five bags of cocoa purchased by the Board during its first four seasons of operation was destroyed, or the beans were used for their cocoa-butter content. By far the greatest proportion was destroyed, but much of the cocoa thus disposed of was off-quality or of very poor quality. In defense of its destruction policy, which was criticized from time to time, the Board stated that it was followed only “with greatest reluctance” and because of “the impossibility of finding shipping space.”

Some additional storage space was constructed by the Gold Coast government, but aggregate storage accommodations in West Africa have never been sufficient for the whole of a normal crop.²⁰ The Board explained that cocoa was normally transported and shipped almost as fast as produced; that much of the available space was needed for urgent military purposes; and that there were definite limits to new construction, on short notice, in the existing absence of adequate supplies of material, labor, and supervision.²¹ The need was exceptionally great for labor and imported materials for war purposes, at the same time that the need for cocoa storage was greatest. Also mentioned were the hazards to cocoa of storage in West Africa, and the limited period it could be held without deterioration, even under the best of conditions.

The Control had operated for two seasons before steps were taken to encourage local processing as a means of disposing of cocoa surpluses otherwise than by destruction. The Board was criticized for failure to take such action earlier. “The scale of destruction finally rendered necessary could not so early have been foreseen but sur-

¹⁹ Ady, *op. cit.*, p. 330.

²⁰ Storage capacity for cocoa in the Gold Coast is apparently something over 200 million pounds, or sufficient to accommodate about half the crop of the size of the 1947/48 crop, estimated at 425 to 450 million pounds. *Foreign Crops and Markets*, Nov. 17, 1947.

²¹ *Cmd. 6554*, p. 9.

pluses and low prices were expected and this precaution would have seemed wisest in view of the Board's liability to the British taxpayer."²² Had the decision to process locally been taken at an early stage, it is contended that "this would have enabled encouraging prices to be paid to the farmer while the net contribution to export of edible fats in the form of cocoa butter would have been higher than that actually achieved in palm products, in which exports compete with internal consumption."²³

Encouragement of local processing was short-lived, and was discontinued in favor of the export of whole beans when destruction was no longer necessary. The Board's report does not state the quantity of beans processed locally, but its financial accounts show sales of cocoa butter in the 1942/43 season at £242,600, and £94,180 in 1943/44. It thought local processing "wasteful," and considered the establishment of a modern plant in West Africa, but concluded that "as a wartime measure the proposal had more disadvantages than advantages."²⁴ Meanwhile, and under somewhat similar circumstances, a cocoa-processing industry was being developed in Brazil.

Proposals for postwar cocoa control.—Before the end of the war the British government had already considered long-term plans for a more or less permanent control of the marketing of West African cocoa.²⁵ As it turned out, the scheme originally outlined in 1944 never went into effect, but a modified version was finally set into operation in 1947.²⁶ Despite shipping and trading difficulties, the wartime controls seem to have worked smoothly and efficiently. The West African Produce Control Board's work was simplified, of course, by the fixed price ceilings in the United States, the operation of the Combined Food Board, and later the IEFEC system of allocations.

Wartime experiences with cocoa control strengthened the view that, in order to stabilize the West African industry, it was "neces-

²² Ady, *op. cit.*, p. 330. Before an official account of the Board's activities was published, the *Economist* wondered "whether serious attempts were made in 1940 and 1941, when the Board had surplus funds and the possibility of obtaining supplies in the United States, to secure improved stores and processing facilities for the local production of cocoa butter" as, it pointed out, Brazil had done, which was "likely to prove a permanent gain to its cocoa trade" (*Economist*, Nov. 20, 1943, p. 681).

²³ Ady, *op. cit.*, p. 330.

²⁴ *Cmd. 6554*, p. 9.

²⁵ Its proposals are contained in Part II ("Statement on Future Policy") of the White Paper (*Cmd. 6554*) presented to Parliament in September 1944, and were for changes to go into effect with the 1945/46 season.

²⁶ The current control plan is properly part of the story of the postwar period and is considered in Chapter 16.

sary to break the direct link between the producers' price and world market prices, the existence of which in the past has caused the local purchase prices to reflect every vagary of speculation on the world's produce markets. . . ." In the Board's view it was not "in the genuine interests of either producers or consumers to revert after the war to pre-war market conditions . . . a prime need of the cocoa industry, if it is to attain prosperity and efficiency, is a reasonably stable price basis, by which is meant not necessarily prices fixed over periods of several years, but the avoidance of short-term fluctuations. . . ." ²⁷

In short, the Board advocated "continuance in essence" of the wartime control scheme as the means best suited to cope with the postwar problems of the West African cocoa industry. There was little quarrel with the Board's objectives, but few liked the scheme as outlined in its entirety. It was attacked by New York and London market interests, by West African buying firms, and by growers themselves.²⁸ The objections raised from various sides were effective in postponing action, and the West African Produce Control Board carried on as before until a permanent control scheme was inaugurated three years later.

Meanwhile, planning by the Colonial Office of a postwar cocoa-control scheme to replace the wartime expedient was based on the assumptions that there would be no "full return" to the prewar buying arrangements, and that a free market for cocoa would "effectively" be re-established as soon as the war ended, or when United States ceiling prices were abolished.²⁹ Officials of the Office were quite emphatic that they did not aim at, or contemplate, the control of selling prices for West African cocoa, once price controls in consuming countries were removed.³⁰ Results of their planning are set forth in the 1944 and 1946 White Papers, and are considered more fully in the following chapter.

BRAZILIAN COCOA-CONTROL OPERATIONS

Many of the wartime problems of cocoa in Brazil were similar to those of West Africa—inaccessibility of markets, scarcity of shipping, diversion of attention to wartime activities, and so on, with con-

²⁷ *Cmd. 6554*, pp. 10-11.

²⁸ For a brief summary of the "interesting" criticisms of the scheme, see Forde and Scott, *The Native Economies of Nigeria*, pp. 270-71.

²⁹ Melville, "The Marketing of West African Cocoa," p. 71.

³⁰ Suspicion that such an objective was contemplated was fairly general, especially in the United States.

sequent neglect of trees for lack of incentives to produce. But the Brazilian problems were faced and handled under a different background, and the postwar industry was left more or less intact. No serious disease problem appeared, and in some respects the industry was strengthened by a war-inspired development in local processing.

The cocoa troubles of Brazil had come to a head a decade earlier, and government intervention was an old story. Unlike the British in West Africa, the Brazilians already had a functioning organization in the Cocoa Institute of Bahia, which could be readily adapted to war-time needs. It eventually became a government monopoly—the sole buyer and seller of cocoa—and this control was not relaxed until after the end of the war.³¹

The Institute (*Instituto de Cacau da Bahia*) was created in 1931 during a period of demoralization among producers, following the 1929 crash and subsequent crisis.³² Its general purpose was to promote improved methods of cultivation and marketing. Organized by the government in the form of a co-operative (with producer participation, but with an appointed president, thus permitting the state to play a powerful role in its affairs), the Institute is said to have been successful in carrying out its original objectives.

Although frequently criticized, by 1939 the Institute had done much. It had organized a transport system for the cocoa zone, building roads and bridges serving some 90 percent of the production of the state.³³ It had constructed warehouses, established an improved grading system, and was handling around 40 percent of cocoa exports. Other activities included technical and financial assistance to planters, and the initiation of research and experimental projects.

Official controls were introduced in 1939, requiring all cocoa sales to be made through the Institute, giving quotas to the export firms, and establishing minimum prices. In 1940 the war so disorganized markets and shipping that purchases from farmers fell to a

³¹ A documented and official account of the operations of the Institute, comparable with that available for West Africa, is apparently not available. In fact, remarkably little specific information is available to the outsider on numerous phases of cocoa in Bahia.

³² Cocoa growing had long been directly or indirectly responsible for about half of the revenues of the state, but very little had been spent on improvement of the cocoa zone. Planting was exploitative, there was no rural credit, interest rates were high, and farmers were continuously in debt and overly dependent upon buyers. Many planters were wrecked in the crash, owner-operated farms went to merchants and moneylenders, and the general demoralization of production gave rise to the establishment of the Institute.

³³ This part of its program was financed by a tax of 2½ cruzeiros per bag on exported cocoa.

low ebb. Machinery set up earlier for financing production proved inadequate, especially with the added burden of carrying the stocks that were rapidly accumulating. Federal control was tightened in 1941, partly in order to protect the state's large financial stake arising from underwriting loans to the Institute.

By order of the Co-ordinator of Economic Mobilization (a war-time federal agency) in May 1943, private exporters were eliminated entirely, and it was made compulsory for growers to deliver all cocoa direct to the Institute. Private agencies did not again come into the market until the spring of 1946. Advances were made to growers in order to tide them over the emergency. Stocks were financed by the government, helped considerably by commitments from, and agreements with, the United States.

Shipping was so scarce in 1942, and submarine activity so great in the Western Atlantic (Map 4, p. 110), that Brazil was unable to market her main export crops in normal volume. The economy of the country was unavoidably to suffer, and assistance was sought from the United States. A technical mission was sent to Brazil in 1942 to investigate the possibility of setting up cocoa-processing plants in Bahia. As with coffee, the United States undertook to provide relief for cocoa, agreeing in 1943 to purchase from growers 1.3 million (60 kg.) bags for \$11 million, or nearly 60 percent of the 1943/44 crop.³⁴ But ships were not available for transporting any such quantity of beans, and they could not be stored for long in humid, tropical Bahia.

Encouraged by the United States, the existing modest cocoa-processing industry of Brazil was expanded to a compressing capacity of some 400,000 bags annually. The use of cocoa beans for this purpose increased nearly fivefold over prewar, or from approximately 47,000 to 225,000 bags.³⁵ At the end of the war 357,000 bags were being so used (1945/46 season), and in following postwar years

³⁴ The contract was with the Commodity Credit Corporation, but the surplus was purchased directly by United States merchants. Again in 1944 the Cocoa Institute contracted with several United States merchants for the sale of 300,000 bags during the 1944/45 season.

³⁵ Beverage and food uses of cocoa products in Brazil are said to be quite small. Only 12,000 bags annually were shipped from Bahia to other Brazilian states during prewar 1934-38. The next five years, however, saw an increase averaging 65,000 bags per year. Industrial production began with the establishment of a cocoa-butter pressing plant in 1928, and other plants were built in 1938, 1942, and 1943. The rapid expansion of the early 1940's was partly due to the demand for cocoa cake in the manufacture of theobromine and caffeine. Most of the cocoa butter produced during the war was sent to the United States. U.S. Dept. Comm., *World Trade in Cocoa*, pp. 29-30.

about 400,000, while grinding capacity of local industries was approaching 500,000 bags annually.⁸⁶

As the war neared an end, and shipments abroad could be made more freely, Brazilian controls over cocoa production and exports remained firm. Price ceilings were still in force in the important United States market. Upon their removal after the war, the controls of the Cocoa Institute seem to have been at least partly inspired by the desire to prevent shortages from developing in the newly created home market. Overseas demand was abnormal and it was at this time, in the postwar period, that the Institute's control policies aroused the most criticism from abroad (pp. 360-66).

THE WAR AND CONSUMING COUNTRIES

Wartime controls in consuming countries over use, consumption, and prices of products derived from the cocoa bean were generally of considerably less significance than the controls imposed in producing countries over production and marketing. The control experiences of the consuming countries seem of only limited interest in explaining postwar problems of the world cocoa economy. Nevertheless, some of the control techniques that were applied tended to change former patterns of consumption, at least temporarily. Perhaps some of the changes may have a future significance that cannot at the moment be clearly seen.

As with many foodstuffs in short supply during the war, the degree of control necessitated in the temperate consuming countries depended upon the relationship of the country concerned to active war theaters, and the ability to communicate at all with the tropical producing areas. For the belligerents it was also a question of priorities for increasingly scarce shipping space. On the whole, the changes in the habits of ultimate consumers, under stress of wartime exigencies of one kind or another, seem not to have had lasting effects.

Demand for cocoa and chocolate products, especially for civilian use, was deferred—not to be made up at a later date—but not weakened. In fact, shortages seemed to intensify desires for certain types of goods, such as chocolate, which had not been too far or too long removed from a semiluxury classification in many consumer circles. This proved particularly true in the numerous instances in which the manufacture of other types of "enjoyment goods" was prohibited or greatly curtailed, and the supply extremely short as well as far more expensive. And, of course, for millions in the armed services new

⁸⁶ L. J. Schwarz, "Cocoa in Brazil," *Documentary Material on Cacao, Part I*, p. 32.

consumption habits were established which seemed likely to have important postwar residual effects on the demand for cocoa and chocolate products.

United States.—Wartime government controls over cocoa in the United States applied chiefly to prices and restrictions on the processing of beans. Immediately after Pearl Harbor, ceilings were established for all grades and types of cocoa beans and for cocoa butter. The OPA revised schedule of February 1942 established prices at slightly lower levels than prevailed at the time of temporary freezing—December 11, 1941.³⁷ A number of amendments were made later on prices importers were allowed to pay, but retail prices of cocoa and cocoa products remained unchanged until controls were finally removed in October 1946.

Initially, stocks of cocoa in the United States were adequate to meet most demands, but supplies ran low as imports were of necessity drastically curtailed in 1942. Although there were few complaints about shortages in the early days of the war, when they did develop the OPA decided against attempting to ration. It felt that because of “the complex distribution system involved, particularly to meet industrial demand, as well as the bewildering varieties of cocoa and chocolate produced,” any program of rationing would be too complicated to handle in relation to its importance.³⁸

The chocolate industry was called upon to develop a variety of ration components and delivered to the services almost a billion pounds of products during the war. Notable achievements were chocolate bars that would stay palatable and not melt in tropical climates, and chocolate-flavored beverages that were instantly soluble in cold water and were compressed to occupy a minimum of shipping space. Many factories were obliged to modify their production arrangements in order to meet the demands of the armed forces. Although sugar and other ingredients were also in short supply, cocoa and chocolate manufacturers were given priorities on these raw materials, as well as for additional equipment.

Beginning in May 1942 various War Production Orders limited the amount of cocoa beans that could be ground or pressed. The lowest quota was 60 percent of the base period (1941), established for the third quarter of 1942 when the shipping situation was so critical.³⁹

³⁷ Base-grade ceilings ranged between 8.55 cents per pound (ex-dock, New York City) for Sanchez to 8.9 cents for Accra and Ivory Coast main crops; intermediate grades were fixed at 9.35 cents; and fine cocoa ranged between 11.5 cents for Superior Red Summer Arriba and 14.25 cents for La Guayra Caracas.

³⁸ OPA, *Studies in Food Rationing*, p. 8.

³⁹ Before the war Africa and Latin America were supplying the United States'

Manufacturers were also prohibited from using chocolate in novelty items or for decorating candy. By mid-1943 processors' grinding quotas were raised to 70 percent, and later in the year to 80 percent, but they were cut back to 70 in mid-1944. In 1945 demand from military sources tapered off and more beans were available for civilian use, quotas being raised to 85 percent in October of that year. Similar quotas for sugar, however, remained at 60 percent of the base period of use.

Cocoa beans were first recommended for allocation by the Combined Food Board in July 1944, and the system of allocation continued in effect (later by the IEFCA) in postwar years of shortage, until June 1949. Despite the need for allocating supplies, apparent consumption of raw cocoa in the United States was maintained fairly well throughout the war, except for 1942. Per capita use, of course, declined when it might well have risen had cocoa been more plentiful.

United Kingdom.—In the United Kingdom wartime associations of manufacturers of cocoa, chocolate products, and confectionery were formed with representatives of the Ministry of Food exercising a controlling voice in matters of policy, but with industry members largely responsible for matters of administration. They managed the scheme of allocating supplies of raw materials to individual manufacturers in proportion to their use during a basic year, June 1938–June 1939. The first rationed raw material was sugar (early in 1940), chocolate manufacturers being allocated a certain percentage of their use during the base period, and sugar confectionery makers another. These allocations varied, during the war and after, from a low of 37.5 percent of 1938/39 use to a high (in 1949) of 70 percent.

Glucose, cocoa beans, nuts, milk, fruits, and essential ingredients were all allocated not only during the war but in the postwar period. In all cases supplies were actually short or were kept short as a matter of policy. Nuts, for example, were allocated only to the extent of 13 percent of prewar in 1943, and fresh milk was denied altogether.

Production was controlled in quantity and type, aggregate output of all types of chocolate and confectionery being roughly a third less than prewar during most of the war period. Only cocoa powder, which was not rationed, was produced in excess of prewar, by about 30 percent. A *category system* was set up to assure that such prod-

cocoa requirements in about equal amounts, but the shipping difficulties of 1941–43 made the Western Hemisphere relatively more important. From 1944 on, and well into the postwar period, however, the proportion supplied by West Africa was greater—more than half the total *vs.* less than half before the war.

ucts as were made would amply represent the lower-priced items. One of the chief problems of manufacturers was the shortage of labor. Although output was down something over one-third in 1943, labor restrictions resulted in reducing employment in both branches of the industry by 70 percent.

Under the Personal Points (Rationing) Scheme of 1942, chocolate and confectionery consumption was reduced to 3 ounces per head per week *vs.* about 7 prewar. Practically all coupons were redeemed, and equitable distribution of limited sweet supplies was thus secured. Ceilings were set at 5s. per pound for chocolate and 4s. for sugar confectionery (later raised to 6s. and 5s.), and these controls were continued long after the war was over. The shortage persisted and rationing was extended, after an unsuccessful attempt to deration sweets in the spring of 1949. The size of the sweets ration came back to 4 ounces, but the industry operated at only about 60 percent of the prewar rate, and under many wartime regulations and controls. In 1951 price ceilings were 8s. and 5s., respectively.

Despite the necessity for a sweets-rationing program, apparent consumption of raw cocoa in the United Kingdom showed a considerable increase during the war years. This was due largely to the need for producing previously imported cocoa butter, used both in the chocolate industry and as a substitute for other fats which were in short supply.

Other countries.—Cocoa supplies available to most Continental European countries were generally very small, especially during the later war years. On the whole, these countries were confronted with wartime problems similar to those briefly described for the United States and the United Kingdom. New groupings of manufacturing and trading interests were usually necessary as government controls were imposed. Restrictions on imports and use, price ceilings, and rationing at some level were common. Shortages of ingredients, labor, or fuel were other problems with which the industry in each country attempted to cope, with varying degrees of success.⁴⁰

Not until the end of the 1940 decade did some of the obstacles to recovery in the cocoa and chocolate industries of several European countries begin to disappear. By this time cocoa prices had tumbled to half the postwar peak attained in 1947, and general economic recovery of war-torn areas was well advanced. Postwar developments in both cocoa production and consumption, however, are the subject of the chapter that follows.

⁴⁰ Brief accounts of the wartime operations of the cocoa and chocolate industries in the principal consuming countries will be found in the report of the Office International du Cacao et du Chocolat, *Conférence Internationale du Cacao* (1946), pp. 33-59.

CHAPTER 16

THE CRITICAL POSTWAR COCOA SITUATION

Transition from war to peace in the world cocoa economy was not easily or rapidly accomplished. In fact, as the 1950 decade opened, one could not be certain that the most pressing and serious problems were actually on their way toward solution. After the end of the war, for several years at least, the world cocoa situation could accurately be described as "critical." By contrast, the impact of the war on coffee was not to be fully felt until 1949/50. Carry-over stocks of coffee had been ample. Because it was easier to expand output, tea production was stepped up early in the war. After the war tea supplies were still short, but each passing year tended to ease the situation as output continued to expand and supplementary supplies became available once more from Indonesia and the green-tea countries.

World cocoa supplies, on the other hand, had shrunk considerably, as was belatedly discovered toward the end of the war. The toll that the spread of diseases had taken, through wartime neglect, came to be appreciated, as annual crops yielded less and less in several important producing countries. Meanwhile, demand for cocoa and chocolate products had received a great impetus during the war and remained strong in the postwar period. The food uses of products of the cocoa bean assumed increasing importance in a world still hungry.

Under such circumstances it is not surprising that the elimination of wartime controls over cocoa was slow. Controls were perhaps even more necessary, as cocoa was recognized to be in short supply, yet equitable distribution was as important as during the war. The International Emergency Food Council (later "Committee") allocations were continued for several years, and more or less shaped the pattern of world trade; rationing was still advisable in major consuming countries, and continuation of price controls seemed inescapable. The one and only, but important, exception was the United States, where decontrol was effected in 1946, with far-reaching consequences to the world cocoa economy.

Easing of the tight supply situation by 1949 brought an end to international allocations and, in many countries, to rationing. Prices also lost a major portion of their abnormal rise of a year or two

earlier, but were still many times the prewar level. An attempt at de-rationing in the United Kingdom was unsuccessful, despite more plentiful supplies. Demand proved far stronger, under the circumstances, than the trade had imagined.

Relatively good crops in 1948/49 and 1949/50 led many to believe that the cocoa "crisis" had been successfully passed. Yet no one could really be sure about the future. Favorable weather may have temporarily improved matters; but the future productive capacity of major producing regions was still in doubt. Swollen shoot in West Africa remained undoubtedly the major single problem of production, but there were many others.

CONTINUATION AND STRENGTHENING OF CONTROLS

Decontrol came fairly soon after the war in the United States—perhaps too soon—but elsewhere controls were continued. When consideration is given both to controls in consuming countries that extended well into postwar years, and to controls in producing countries, there seems little question that cocoa ended the war more regimented than ever before. The war, and the extension of controls in postwar years, had consequences of major importance in several sectors of the world cocoa economy.

Whereas cocoa was completely freed of restrictions in the United States in October 1946, the British were to continue their rigid system of controls for a number of years. Bulk-purchasing arrangements were extended, and soon to be set up were the permanent marketing organizations in British West Africa. At home, allocations of materials to manufacturers were to be prolonged for years, as were price controls and the rationing of sweets.

Abolition of the internal controls over cocoa in the United Kingdom, as elsewhere in several European consuming countries, was dependent upon the restoration of the supply position. This proved to be a slower process than originally contemplated. Meanwhile consumers were denied much latitude in preference, and the competitive position of chocolate manufacturers remained more or less frozen.

With the removal of import controls (along with price ceilings), the United States was unable to implement its allocation under the IEFC. This caused the Committee some difficulty and also affected the cocoa market. Since there was no internal system of allocations, manufacturers tended to bid against each other for the limited supplies allocated to the United States, and thus added to gyrations in an already nervous market.

For a while, until the new Cocoa Institute setup was arranged in Bahia, Brazilian shipments were out of line with allocations. The Committee's report in 1948 notes that, because the Institute now had authority to control exports, it would do so in accordance with allocation recommendations.¹ Earlier, it seems that the Brazilians had hoped to get better prices for their cocoa from markets with allocations too small for existing demand.

Conflict of British and American views.—Before controls were removed in the United States, largely because of pressure from the industry, representatives of manufacturers met with Ministry of Food officials in London. The British manufacturers definitely favored keeping controls:

We had advocated continued control of marketing and prices . . . we said that the post-war demand for cocoa, having disease in mind, would cause panic prices. . . . The Industry in this country was entirely united in this. We said that until supplies became normal, we should hold the price. Without control, we said, with low stocks, desire for increased consumption, desire to build up stocks, and the incidence of disease, there was no limit to the price.

We realized how difficult it would be for the U.S.A. . . . to stay under the control of the price ceilings which had operated during the war. We realized also that unless the U.S.A. continued their price control, all users in the world would have to pay higher prices. . . . I argued for a continuance of price control in the U.S.A., saying no matter what price they paid they could not get more cocoa. The Americans could not agree, and they said the price would not go beyond 16 cents. . . . It went up to three times that price in a few weeks and in November, 1947, to 54 cents. . . .²

The official British position also favored maintaining the bulk-purchasing system for overseas commodities in short supply, although some trade interests opposed the idea. Bulk-purchasing arrangements had been a notable feature of British wartime management of supplies, and they were to continue an integral part of the procurement system in the early postwar period. In contrast with World War I, when producers and consumers alike suffered from more or less uncontrolled prices and uncertain supplies, the experience of World War II with bulk-purchasing agreements had been quite satisfactory.

Although the bulk-purchasing program remained controversial, it had much obvious merit, at least in wartime. Bulk-purchasing agreements, usually negotiated on a year-to-year basis, had contributed to short-run price stability at both producer and consumer levels. Producers of annual crops were given a concrete basis for planning

¹ *IEFC Report* . . . (March 1948), p. 32.

² Hood, "World Supplies of Raw Cocoa," pp. 11-12.

operations, and consumers in importing countries had some assurance of supplies, if shipping could be provided.³ Official management of supplies in importing countries was easier because distribution under rationing could be planned.

In postwar years, when rationing was still necessary for many commodities in many countries and price stabilization was highly desirable, the case for continued use of wartime methods of operation was very strong. Food rationing and price stabilization would be extremely difficult, if not impossible, without government control over buying, especially under circumstances of exchange difficulties which tended to force discrimination among sources of supply.

Internal controls in the United Kingdom.—Chocolate manufacturers, however, were critical of the Food Ministry's "bureaucratic secrecy" about its buying operations and its failure to make greater use of the "skilled services of the industry." They were in the dark on the planning of their own operations, not even knowing the price paid for cocoa by the Ministry to the West African marketing boards. Until December 1948, when the Ministry made its first reduction in selling prices, all adjustments since the end of the war had been in an upward direction.⁴

As against a prewar average consumption of about 7 ounces per week, the wartime level of the British sweets ration was set at only 3 ounces. After the war, in 1946, it was increased to 3½ (June) and to 4 ounces (October), but in 1947 it remained at the same level, except for a 4-ounce Christmas bonus. The manufacturers hoped that the ration could soon be raised to 5 ounces, but instead, in 1948, it was reduced to 3, primarily because of a sugar position made unfavorable by the British shortage of dollars. In early postwar years

³ Typical bulk-purchasing arrangements are less suitable for tree crops than for annuals, yet they have been applied to permanent crops in modified form. They "have taken a peculiarly interesting form in the case of supplies from peasant growers in the British colonies, and have led to developments likely to prove permanent features of colonial policy. . . ." A "general solution to the problems of production and supply of permanent crops lies in the extension of bulk contracts." Ady, "Bulk Purchasing and the Colonial Producer," pp. 321, 339. The official (Ministry of Food) case for continuing bulk-purchasing schemes for all overseas commodities still in short supply was expounded on numerous occasions during early postwar years.

Others argued the case against bulk purchases as a prominent feature of British policy for trade with primary producers, holding that guaranteed prices, buffer-stock arrangements, and so on, would be better for price-stabilization purposes. See, for example, F. V. Meyer, "Bulk Purchases," *Economica* (London), February 1948, XV, 51-60.

⁴ From £35 per ton shortly after the outbreak of the war to a high of £225 10s. in December 1947. The 1948 reduction was to £190 6s. 8d., but in June 1950 selling prices were again raised to £208 6s. 8d., plus duty.

the amount of sugar available to the industry largely determined the size of the sweets ration.

In April 1949, with the ration level at 4 ounces, the Ministry of Food finally abolished the restrictions on consumption that had been so long in effect. Manufacturers had been agitating for elimination of the sweets ration and for decontrol, and felt confident that the "risk" taken by the Ministry was well worth taking.⁵ The larger-than-expected 1948/49 cocoa crop was undoubtedly a factor in the decision to deration. But both the trade and government officials had, as the *Economist* remarked, "grossly" underestimated the situation.

Most chocolate and confectionery manufacturers were increasingly restless under the continuation of rigid controls several years after the war was over. They were hopeful that supplies and demand could be equated under derationing and uncontrolled prices. Apparently they figured that production equivalent to 4½ to 4¾ ounces per capita would be sufficient to meet existing demand, with some price increase.⁶ Actually the Ministry made ingredients available for a 4¾-ounce production level, but prices remained controlled and were not adjusted to realistic levels such as the natural operation of supply and demand forces would have set.

Earlier, the Minister of Food had refused to consider a price increase as a means of holding demand down to supplies of cocoa; and when it was finally decided to deration, it soon became apparent that a mistake had been made. Stocks on hand proved inadequate to meet the underestimated pent-up demand, and it was necessary to reintroduce rationing a few months later (August) at the previous 4-ounce level. Had prices been permitted to rise at the time rationing was discontinued, equilibrium might have been attained. As it was, sweets were a refuge from a diet that remained austere, and purchasing power was high with substantially full employment. A year later (September 1950), and following the abandonment of bulk buying for tea,

⁵ They argued that prices had increased to such an extent that a return to the prewar consumption level was unlikely, pointing out that the average price of chocolate and sweets had risen from 1s. to 2s. 9d. per pound by 1949. Trade interests also reasoned (falsely it seems) that the buying public had learned to spend more on tobacco, cigarettes, drinks, film, etc., all of which would become more competitive as the price of chocolate and confectionery was increased. One immediate reason for resumption of rationing was the short sugar position, created by a further dollar squeeze late in the summer.

⁶ It was also thought that competition might reassert itself within the industry at around this, or perhaps the 5-ounce, level of production. This was welcomed by the more progressive firms, impatient with continuance of the system of government allocation of raw materials (based on 1938/39 operations) which effectively froze the competitive situation for many years.

the Ministry announced that the purchasing of cocoa would revert to private channels at a date to be announced. Rationing and price controls, however, were to continue in effect, as with tea in the United Kingdom.

Trouble over West African controls.—Soon after the end of the war a threat of another hold-up of supplies, similar to that of 1937/38, developed in the Gold Coast.⁷ Dissatisfaction arose, apparently, over the question of prices paid to growers by the West African Produce Control Board rather than over the terms of the White Paper scheme for cocoa marketing.⁸ The Board had abandoned its wartime “conservative” purchase-price policy when it substantially increased prices for the 1944/45 season. But the cocoa farmers wanted a greater increase for the 1945/46 season than the Board was prepared to make. Also involved in the agitation for a hold-up was a suspicion, which tended to cast doubts on the whole White Paper scheme, about the ultimate destination of the wartime profits of the Board.

West African growers knew that the Control Board had kept prices low during the war while their own living costs increased. They feared that the same policy would be pursued by any new control setup. Suspicion was considerably allayed when it was announced that the British government would transfer the wartime profits of the Board to West Africa before the end of March 1946.

The chiefs of the Gold Coast advised farmers to accept the Board’s offer of 15s. per 60-pound load “for the present.” This price for the 1945/46 season (less 6d. war surcharge) was estimated to bring farmers 13s. 4d.—about double the wartime average, and an increase of 2s. 9d. over 1944/45. During the last year (1943/44) of the Board’s “conservative” policy, farmers were receiving 6s. 1d. per load. In the years ahead they were to receive several times these amounts.

WEST AFRICAN COCOA CONTROL SCHEME OF 1947

Despite some two years of controversy, the cocoa-marketing scheme for West Africa that went into effect at the beginning of the

⁷ See articles by “Accra correspondent” in *Economist*, Dec. 15, 1945, p. 866, and Jan. 5, 1946, pp. 17–18.

⁸ Earlier, in September 1945, a delegation of Gold Coast and Nigerian cocoa farmers went to London to register their protests over the original White Paper marketing proposals of September 1944. They suspected that the West African buying firms were sponsoring the scheme, and objected to the perpetuation of the wartime system of control which, they felt, was dominated by the buyers. This suspicion was somewhat surprising, since many of the buying firms also opposed the scheme. Others were willing to accept it if accompanied by safeguards that were not, at the time, clearly set forth.

1947/48 season was not fundamentally different from that proposed in 1944 during the war. The principal modifications in the original scheme involved placing greater responsibility for marketing on the control boards that were set up in the Gold Coast and Nigeria, and changing the composition of the boards, so as to decrease official representation and enlarge producer participation. The latter modification was designed to emphasize the government's ultimate intention to leave the boards in the control of producer's representatives, such as co-operative societies. Composition of the boards was to be "susceptible of modification as time goes on."

Apparently the revisions made in the 1946 White Paper met most of the farmers' objections that were based on the fear that they would be controlled by marketing boards they were unable to influence.⁹ The main functions of the boards as outlined were: (a) to fix seasonal prices payable to farmers; (b) to determine purchase arrangements and issue licenses to buyers; and (c) to set up and operate the necessary administrative machinery for buying, shipping, and selling all cocoa purchased.

The newly formed marketing boards were adequately financed from the profits made by the West African Produce Control Board during the seasons 1939/40 to 1946/47 inclusive. These amounted to the substantial sum of £25.2 million.¹⁰ Any future profits from operations of the new boards were to be used primarily as a buffer against years of low world cocoa prices. Secondarily, the funds at their disposal could be used at discretion

for other purposes of general benefit to the cocoa producers and the industry, such as research, disease eradication and rehabilitation, the amelioration of indebtedness, the encouragement of co-operation and the provision of other amenities and facilities to producers.¹¹

⁹ The Gold Coast Marketing Board was to consist initially of ten members—four nominated by the governor, two producer representatives nominated by the governor on the recommendations respectively of the Joint Provincial Council and the Ashanti Confederacy Council, two nominated respectively by the above councils, one nominated by the Gold Coast chambers of commerce, and one by the cocoa manufacturers with buying establishments in the Gold Coast. (In its first annual report the Board reported membership of 12 with slightly different composition.) The Nigeria Cocoa Marketing Board was to have three to five members appointed by the governor, and was to be assisted by an advisory committee, also appointed by the governor, with membership to include representatives of producer and commercial interests. Great Britain, *Statement on Future Marketing of West African Cocoa* . . . (Cmd. 6950, November 1946), p. 5.

¹⁰ The Gold Coast accounted for £16 million and Nigeria £9.2 million. Already earmarked at this time for purposes other than cocoa marketing was £1.25 million for research and £896,719 for higher education in the Gold Coast (*Cocoa Conference 1948*, p. 94).

¹¹ *Cmd. 6950*, p. 6.

During the war, financial control and responsibility for administration of the West African marketing scheme had centered in London, the British taxpayer indirectly supplying the funds and assuming the risks. Neither the British nor local governments were now to have access to funds turned over to the boards. The postwar marketing scheme was designed to give a measure of security to the cocoa farmer, and it was expected that reserves would be maintained to cushion a future fall in prices. Just how the plan worked out in practice seemed very largely up to the Africans themselves: their representation on the boards appeared ample to carry any reasonable proposals.

First annual reports of the new West African marketing boards were published in 1949 covering the 1947/48 season, but the trade knew fairly well what they would show, profitwise, much earlier. The Gold Coast Cocoa Marketing Board recorded a "most successful" year in trading, but pointed out that its first problem was swollen shoot, and its second a possible decline in world cocoa prices. To assist in rehabilitation schemes which called for compensating farmers for cutting out their diseased trees, the Board appropriated £9 million, or more than one-third of its first year's surplus.¹² To protect farmers against the vagaries of the world market, the Board felt that some £30 million should eventually be allocated to the stabilization fund, and indicated its intention "to do its utmost" to build up adequate reserves.¹³

Operations of the Gold Coast Cocoa Marketing Board were officially begun on October 1, 1947, the beginning of the cocoa year. The buying price for the 1947/48 crop was set at 40s. per load of 60 pounds (i.e., £74 13s. per ton for naked beans ex-scale at buying points) *vs.* 27s. in 1946/47 and 15s. in 1945/46, paid by the now dissolved West African Produce Control Board. In its first report the Board commented on "the wisdom of fixing a stable price for the season," pointing out that the range in selling prices for the season was from £148 to £234 per ton, a difference of £86 per ton or 43s. per load. Total purchases for the crop year were 207,666 tons.

Operations of the Board for the following (1948/49) season were considered "satisfactory" even though they resulted in a net loss of £134,440, chiefly because buying prices were set at an "extraor-

¹² But that surplus amounted to a rather fantastic figure—about £24.1 million. In addition, some £13.5 million of the approximately £16 million in accumulated profits due the Board were handed over as capital when it began to operate.

¹³ The Gold Coast Cocoa Marketing Board, *First Annual Report and Accounts for the Year Ended 30th September 1948* (Accra, 1949), p. 4.

dinary" figure of 65s. per load. The chairman thought this too high for the economy of the country, since consumer goods were still not in sufficient supply and prices demanded for them were accordingly "exorbitant."¹⁴ The average price obtained for the main crop of 268,454 tons was £136 11s.

For the 1949/50 season buying prices were reduced to 45s. per load (Grades I and II), but were again increased to 70s. for 1950/51—a record high. The Gold Coast main crop was unofficially estimated at about the same size as the 1949/50 main crop, but world prices meanwhile had been rising and apparently the Board was no longer so concerned about the effects on the economy of such "extraordinary" high prices to growers.

The report of the Nigeria Cocoa Marketing Board for the 1947/48 season¹⁵ recounts, in considerable detail, satisfactory progress and future plans designed "to give the cocoa farmer an unprecedented security of return for his labours over a protracted period" (p. 28). A "conservative" price policy was adopted, permitting the accumulation of a "very substantial" price-stabilization fund and a large increase in prices to growers for the 1948/49 season. The Board refused to guess, however, about the ultimate capital requirements for an adequate stabilization fund (p. 20).

Net profits from operations for the season were approximately £9.3 million on a crop roughly one-fourth smaller than the recent five-year average of around 100,000 tons. Also the Board received £8.3 million of its share of the 1939/40 to 1946/47 profits of the West African Produce Control Board. The quality of the crop marketed was noticeably improved by a deliberate policy of price differentials, which set a high premium on production of the better grades. Finally, the Board allocated funds for a variety of development schemes for cocoa and contributed to the endowment of the West African Cacao Research Institute. Because of the still relatively minor swollen shoot infection in Nigeria, its provision for rehabilitation was modest, but the scheme evolved was considered by the Board to be more liberal than that of the Gold Coast (p. 21).

For the next (1948/49) season, the Board almost doubled its buying prices over the previous year (£120 *vs.* £62 per ton for main crop, Grade I), because its funds had reached "such substantial proportions" that further large additions were not considered necessary for accomplishing its purposes.¹⁶ Profits for the season were brought

¹⁴ As reported in *Public Ledger*, Feb. 25, 1950, p. 5.

¹⁵ *First Annual Report: Season 1947/48* (London, 1949).

¹⁶ *Second Annual Report: Season 1948/49* (London, 1950), pp. 5-6, 30-31.

down to £799,846. But for 1949/50, prices to producers were reduced to £100 per ton. This was the minimum price guaranteed to growers for Grade I for a period extending at least through the 1950/51 season. It was also reported that 800,000 of Nigeria's 200 million cocoa trees had been cut out because of swollen shoot, and that a new outbreak involving at least 600,000 more trees had been recently discovered.¹⁷ For both seasons the Grade IV had been eliminated, and progress was made toward improving quality as the system of price differentials remained in effect.

The White Paper proposals of 1946 envisaged joint establishment by the new boards of "an organization in London to advise on the formulation of general marketing policy and to sell all cocoa on their behalf."¹⁸ As worked out, both of the West African marketing boards set up subsidiary companies in London to handle the selling of their respective cocoa crops; but they selected the same managing director.¹⁹ In effect, a single seller—by far the world's biggest—was installed, and he soon became the natural target for criticism as a monopoly seller.²⁰

Market developments, during the first season of operation of the new boards and their selling agent, allegedly created what came to be commonly known in the United States as "the great cocoa squeeze," an interesting story to be reported presently.

Problems of French West Africa.—Meanwhile, in French West Africa a marketing system similar to that selected for the British territories was introduced by the French Africa Cocoa Exporters' Pool, which had been operating since the 1944/45 crop season. Control was exercised over the purchases of exporters, and sales were made on behalf, and under instruction, of the French Colonial Office. High cocoa prices resulted in lush profits for the marketing boards until the beginning of the 1948/49 season and, to a lesser extent, for the French Cocoa Reserve Fund.

As world cocoa prices fell in 1948/49, f.o.b. prices in West Africa were maintained at the level set at the beginning of the 1948/49 season. The result was "heavy" losses for the reserve fund. These

¹⁷ *Foreign Crops and Markets*, Sept. 20, 1948, p. 298.

¹⁸ *Cmd. 6950*, p. 7.

¹⁹ These were the Gold Coast Marketing Company, Ltd., and the Nigerian Produce Marketing Company, Ltd., with E. C. Tansley as managing director of both.

²⁰ The criticism came mostly from the United States. In the United Kingdom, where the Ministry of Food still bought and allocated all cocoa imported, the trade did not deal directly with the selling agency, its stocks, position was relatively comfortable, and the position of West African sellers better understood.

losses, added to the huge appropriations already spent for plantation rehabilitation, left the fund "with barely enough money to pursue the rehabilitation scheme and disease protection work. . . . [It] will not be in a position, from the 1949/50 crop onward, to protect . . . the prices paid to the planters. . . . It is easy to conceive that . . . cocoa prices in French West Africa will be by far lower than those of British West Africa."²¹

This situation was considered by the French to be "very dangerous," and it undoubtedly could have repercussions in the Gold Coast and the Ivory Coast. Some of the possible longer-term competitive implications were thus foreseen, but few would venture to guess the ultimate outcome of government intervention in cocoa affairs, when controls in one place seemed to breed controls in another.

COCOA PRICES AND THE COCOA "SQUEEZE"

Even before the end of the war, in early 1944, trade interests in the United States had come to fear that a great cocoa "squeeze" would be seen within a few years. At this time stocks, which had been ample in the major consuming countries during the early years of the war, had dwindled to a few months' supply in the United States (Chart 15).²² Cocoa stocks in the United Kingdom, on the other hand, were thought to be as large as, or perhaps larger than, at the outbreak of the war. Some United States trade interests proposed that the British release and sell a minimum of 75,000 tons in order to help them replenish their stocks.

British proposals later in the same year, for a continuation of West African cocoa controls in the postwar period (the famous 1944 White Paper), gave rise to a controversy destined to become somewhat heated, which was to last for several years. United States trade

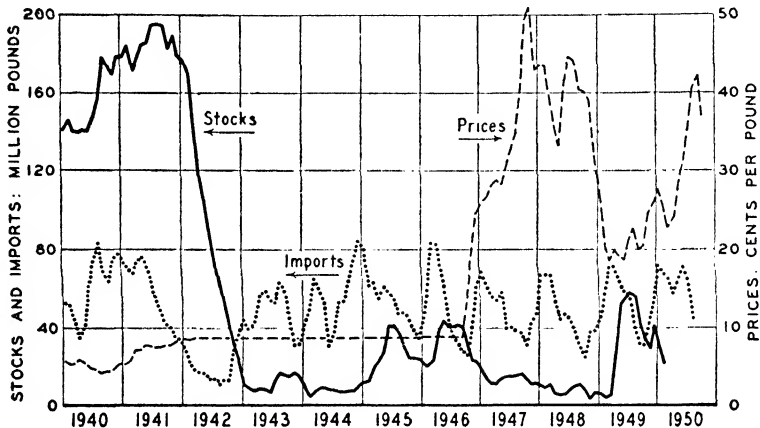
²¹ Paper by André Balleyguier in *Cocoa Conference 1949*, p. 9.

²² Before the war the United States position had been strong by virtue of the opening of the New York Cocoa Exchange in 1925, which came to supplant European markets and attract surplus supplies. "The single contract . . . and the marketing facilities afforded . . . made New York the world's leading cocoa market and the Eastern seaboard of the United States the custodian of the world's cocoa surplus." Annual trading was in most years greater than world production.

"Before the advent of the Exchange, the world's reserves were carried in London, Liverpool, Hamburg, and Havre and the market for cocoa was made in Europe. Fluctuations were sharp, trades for large quantities of cocoa were usually secret, importers and manufacturers often paid sharply divergent prices for the same cocoa at the same time. Crop reports were usually unreliable and caused too frequent disturbances in the market." Isaac Witkin, *Journal of Commerce* (New York), May 29, 1944; and presidential address, New York Cocoa Exchange, Twentieth Anniversary Dinner, Nov. 14, 1945.

interests were most vocal in protests, and their immediate position was weakest. The specter loomed of monopolistic control and exploitation by the British (and later the Brazilians) of American trade and consumer interests.

CHART 15.—COCOA PRICES (NEW YORK), UNITED STATES IMPORTS AND VISIBLE STOCKS, 1940-50*



* Prices and stocks from Appendix Table XII. Official (U.S. Dept. Comm.) import data are 3-month moving averages. As noted in the text "visible" stocks are not necessarily a good measure of the total stocks position.

Few apparently expected the squeeze to start as soon as it did—shortly after decontrol in October 1946—or that their worst fears would be realized. Nearly two years before United States ceilings were removed, spokesmen for the trade viewed with alarm the prospect of some four-fifths of the world cocoa output being jointly controlled, primarily by the British, but secondarily by the Brazilians and the French. But the most extreme views on possible price consequences seem, in retrospect, to have been far too conservative. "The present market is 9¢: with a British STATE MONOPOLY, if we continue our present volume of consumption, the price could be 15¢, 20¢, or 25¢, whatever our British friends choose to charge."²⁸

In a series of statements and open letters, Isaac Witkin, then president of the New York Cocoa Exchange, took the lead in voicing the

²⁸ Witkin open letter, *Journal of Commerce* (New York), Nov. 1, 1944. The writer, describing the 1944 White Paper proposal as "monstrous," stated that British West African cocoa interests in 1938 "actually visited Brazil to negotiate the formation of a joint cocoa pooling of the sources of production from which the United States must receive over 80 percent of its cocoa bean requirements."

indignation of American trading interests. His views were soon to be echoed by the Cocoa Merchants' Association of America, the National Confectioners' Association of the United States, and by other branches of the industry.²⁴ In one way or another, these groups sought to bring government pressure to bear on the industry's problems of cocoa supply and price.

Cocoa prices started to advance after price decontrol in the United States, and right after the British official statement on future policy with regard to West African cocoa. Apparently in the minds of members of the United States cocoa trade, the price advance to an "exorbitant" level, "reminiscent of early post World War I years" (20 cents for Accra in New York), was due "solely" to "the withholding of offers of British West African cocoas."²⁵ Withdrawal of the White Paper was requested. Some considered it a violation of the Atlantic Charter, and there were numerous other objections.

It was not long before the "exorbitant" cocoa prices of late 1946 (20–25 cents) had become "scandalously high" at the 35-cent level, by August 1947 (see Chart 15 which supplements the discussion in following pages). But "frightfully over-priced" cocoa at this time was to reach "fantastic" levels within a few months (November), at over 50 cents, before a long, irregular decline set in, extending into late 1949.²⁶ Consumer resistance, boycotts, and the use of substitutes²⁷ in the making of chocolates were feared as a consequence of the highly inflated price level for cocoa beans.

The original White Paper on proposed cocoa controls, issued in September 1944, was considered "really dead"²⁸ a year later, but a

²⁴ "The entire chocolate fraternity, from the biggest cocoa bean importer to the smallest Main Street candy retailer, goes to bed nightly muttering oaths against the British-Brazilian cocoa monopoly." *Wall Street Journal*, Oct. 2, 1947.

²⁵ Cocoa trade resolutions and cables of November 1946.

²⁶ Manufacturers' and traders' ideas on what constitutes a "fair price" for cocoa have undergone curious changes in recent years, reflecting general market and economic conditions at the time. Early in the war, when prices of base-grade cocoas were frozen around 9 cents, the trade in the United States thought them high. Late in the war, prices within a range of 8 to 12 cents were thought "fair." As cocoa started to rise after the war such ideas were revised upward, until 25 cents was "reasonable"—when cocoa was 45 to 50 cents. Toward the end of the decade, when prices were back down to the low 20's, cocoa interests on both sides of the Atlantic seemed to view a figure of 15 cents a pound as "fair and reasonable."

²⁷ Some 50,000 tons of coconut oil were used as a substitute for cocoa butter during the "high" 12- to 13-cent market of 1937, eliminating the consumption of 150,000 tons of cocoa beans. Witkin, Nov. 1, 1944 statement.

²⁸ "We on this side killed it with the aid of the British Cocoa & Allied Trades and with the help of strong opposition on the part of the natives in West Africa." Witkin address, Nov. 14, 1945.

version of the scheme not fundamentally different, as already noted, was to go into effect at the beginning of the 1947/48 season. When this final version was introduced in the House of Commons in November 1946, renewed alarms, protests, and fears appeared in the United States. "British Monopoly Planned in Cocoa" was about the mildest reference to be found in newspaper headlines.²⁹ There was nothing new in the British plan except for the decision to make it permanent.

About the same time, threats appeared from other directions: in October 1946 a certain measure of control over exports was again given to the Cocoa Institute of Bahia; and in the Dominican Republic the government created a virtual monopoly, to operate beginning with the spring crop of 1947.³⁰ The absolute wartime government control over cocoa in Brazil had been terminated only a few months earlier, but the new arrangement called for all export orders to be referred to the Institute, licenses issued to exporters, and sales prorated in proportion to their stocks.³¹ Furthermore, at this time Brazil (along with the United States) was not participating effectively in the IEFCA scheme of allocations.

In August 1947, shortly before the new Gold Coast and Nigerian boards were to begin formal operations, United States manufacturers were advised to

allow their stocks, and forward purchases combined, to fall to a maximum of a sixty days' supply, and then buy only from hand to mouth . . . our suggested buying policy . . . could easily drive prices down from the 30¢ to 35¢ level to a 25¢ level, and possibly even to a 15¢ to 18¢ level.³²

But the expectation that producers would not hold back in a declining market, when cocoa was in flush supply (new-crop marketings October–December), was not realized. Again the producers' organi-

²⁹ *New York Times*, Nov. 21, 1946, p. 5. A few weeks earlier the *New York Daily News* had cried: "It is comparable to the piratical prices the British-Dutch rubber cartels used to charge for their products. This stickup game is going on . . . at a time when we are . . . straining plenty of nerves, including financial ones, to keep Great Britain from going bankrupt." Quoted by *Time*, Oct. 13, 1947, p. 100.

³⁰ In December 1946 a company (Chocolatera Sanchez) was formed for the processing of cocoa, sugar, and other materials used in candymaking. It was granted many concessions and operated until March 1948 before it was nationalized. Thereafter, and for five years, the company was allowed a quota of one-third of the cocoa output of the Dominican Republic. *Foreign Crops and Markets*, Nov. 7, 1949, p. 474.

³¹ Under certain specified conditions the Institute acquired exclusive authority to make sales. Price control was not part of the setup at this time, or when the arrangement was extended for the next season, but the machinery for the wartime type of control was apparently ready for use if needed.

³² General Cocoa, Inc., market bulletin of Aug. 16, 1947.

zations withheld normal marketings for the purpose of furthering the squeeze, the Bahia Cocoa Institute announcing its decision in early October.³³ Prices continued to rise, speeded by the covering of shorts who had expected a price drop.³⁴

Commenting editorially, the *Wall Street Journal* stated:

The price squeeze is pretty obviously engineered by the British and Brazilian governments, which together control three-fourths of the world's supply. . . . whereas the established pre-war practice was for cocoa bean growers to enter into volume selling contracts well in advance of the October-December harvest season, now their controllers are just not interested in "futures."³⁵

Brazil had followed the profitable example of the British, but there seems to be little evidence of collusion, despite strong suspicions to the contrary in the United States.³⁶

In the speculative flurry of a few months during the latter part of 1947, cocoa prices in New York rose from around 35 cents to an all-time peak in November of about 55 cents per pound. Thereafter an irregular decline set in that was to last for several years. The activities of United States buyers were credited in some circles with bringing prices down, but crops, crop prospects, and consumer resistance to excessively high prices were also instrumental. By mid-1949, with a far-better-than-anticipated world crop for 1948/49, prices reached the low level of 17 cents, only to more than double again during the following year.

³³ *Wall Street Journal*, Oct. 7, 1947.

³⁴ Meanwhile United States manufacturers had become more aggressive in encouraging production from alternate supply sources and in reorganizing their own operations for greater efficiency and lower costs.

³⁵ Oct. 2, 1947. Similar, but less positive, views were held in Great Britain. It seemed "quite possible" that the "very deliberate" selling policy of the West African boards was "one reason" for the market squeeze; see *The Procurement of Foodstuffs*, p. 16. A British manufacturer commented that it had been "curious" that, with every upward move of 100 points (1 cent per lb.) on the New York Exchange, the marketing boards raised their prices 5s. a cwt., but when the market began to go down "we were far from finding that the . . . Boards kept downward step." Regarding shipping he wondered "in cynical moments . . . if it were not deliberately restricted in order to keep up the prices"; and thought it unlikely that the Boards would sell forward if "so doing would depress the American price." N. Edwards in the *Bournville Works Magazine*, August 1948, p. 157.

But see also the denial of the managing director of the selling agency that there was any withholding, considered below.

³⁶ Hypersuspicious and cynical brokers in New York told the author that "the British probably double-crossed the Brazilians." Such expressions seem to be a reflection of the genuine bitterness, perhaps stimulated by business worries, that developed in United States cocoa trade circles during the postwar years.

The export monopoly enjoyed by the Cocoa Institute, which fixed minimum prices for exports, was terminated in December 1949; and direct business between exporters and importers was resumed.

By shrewd timing of deliveries the control agencies in West Africa, Brazil, and the Dominican Republic made lush profits on their United States marketings. General shortage of supplies, competitive bidding, hoarding by large manufacturers, and the miscalculations of speculators, all contributed to the gyrations that characterized the cocoa market in this period. The principal victims seemed to have been the thousands of small candy manufacturers.

In early 1948 the National Confectioners' Association of the United States joined the pressure groups, after some hesitation as to the best techniques to employ. (Meanwhile prices had eased from the November 1947 peak level of 55 cents to around 43–45 cents, and they ranged between 35 and 45 cents for most of 1948.) In conferring with British manufacturers via the Cocoa, Chocolate and Confectionery Alliance, Ltd., the Association undertook to review proposed letters and statements to United States senators and congressmen, designed to condition further Marshall Plan aid on dissolution of the new marketing boards in British West Africa.³⁷

British manufacturers, through their Alliance, pointed out that the marketing boards were not "British government agencies," as implied by the Americans. Their answer to the criticism of the enormous profits made by the marketing agencies was that paying the producer more would not bring forth additional production—it would only create further inflation in West Africa, and more problems, because of the shortage of consumer goods.

Although British manufacturing interests favored "the setting up of orderly marketing arrangements for cocoa in West Africa," they agreed with American manufacturers that cocoa prices were too high, and that the spread between producer and consumer prices was far too large. However, they reminded "their American friends" that in 1946, when a 16-cent price level was considered high, they advised against removal of price ceilings in the United States, fearing that world prices "would soar to unprecedented levels." Inasmuch as American interests pushed for rapid decontrol and got it, the British could say, "It would probably even now have been possible for you

³⁷ The confectioners' statement of February 1948 stated that manufacturers of chocolate coatings and solid chocolate bars were still "fairly comfortable," despite high cocoa prices, because "to a large extent" they could pass on the burden of high prices to candy manufacturers. But among candy manufacturers, they complained, box chocolates were already backing up badly, bulk chocolate was losing ground, and all but a few of the best-known bar candies were meeting "terrific" sales resistance. They felt the urgent necessity for increasing prices, but feared that, for many low-priced items, they would be priced out of the market in competition with such items as ice cream, soft drinks, magazines, "and other bids for the consumers' small change."

and us to obtain our cocoa at what you consider to be a reasonable price."³⁸

The British vigorously denied any attempt to create a producers' monopoly in cocoa, pointing out that this would be impossible in any event, and that, having subscribed to the principles of the ITO Charter, no international arrangement could be contemplated that did not conform to it. They were free to admit that one of the basic ideas behind the marketing arrangements was to strengthen the bargaining position of the West African farmer, and to improve his lot. They hoped, furthermore, that the operations of the boards would help to steady the cocoa market. Since there was no suggestion of restricting cocoa production or refusing to sell, the British officials found little substance in charges of monopolistic practices.³⁹

Some American cocoa interests had been highly critical of the single-seller arrangement, apparently because of the *possibilities* of abuse. While conceding that there had been no production restriction, they accused the managing director of the West African cocoa marketing companies in London of withholding supplies in order to influence the course of prices. He, in turn, considered such criticism "not quite fair." Referring to the flare-up in prices to all-time peaks in late 1947, instead of withholding, he stated: "we started selling as quickly as we could . . . took risks . . . had difficulties . . . a railway strike . . . disturbances in the Gold Coast . . . various inland transport difficulties . . . lack of petrol . . ."; and concluded that "forward selling does not actually produce any more cocoa . . . what do manufacturers want us to do?"⁴⁰

Commenting further on the "mysterious and suspect" operations of the London selling agency, its manager stated (again referring to the 1947/48 season):

In our selling we ignored . . . the high spot quotations . . . did not take much notice of the distant positions. We regarded them both as somewhat artificial, and we regarded the value of relatively near shipment—say two months ahead—as more or less the true market value. . . . we definitely did follow the trend of the market. We started at about 46 cents and followed it

³⁸ Actual statement from a "draft letter" accessible to the author, which was later dispatched as drafted on Mar. 23, 1948.

³⁹ The author's impression from contact with British cocoa interests in 1949 was that criticisms from across the Atlantic, charges of monopoly, and so on, were not taken very seriously. Nor were the efforts, and sometimes threats, of United States manufacturers to become independent of British sources of supply considered realistic. The elements of propaganda and politics were recognized, and it was assumed that competitive rivalries would continue even though they might find expression at different levels, owing to the increasingly important role of government in world cocoa affairs.

⁴⁰ E. C. Tansley in *Cocoa Conference 1948* . . . , p. 78.

down to about 36 or 37 cents; it then went up to 44 cents. In the spring [1948] we followed it down to somewhere in the low thirties; and then we were sold out. Then what happened? The market went up to 40 cents. I think that is a complete answer to the suggestion that we attempted to exploit this market, or attempted in any way to push it up; nor did we try to push it down. The fact that the market jumped up in the spring looks as if unconsciously we had a depressing effect on it.⁴¹

Actually, in view of the numerous uncertainties of this period—still one of imperfect market information—it is not surprising that much confusion and misunderstanding was generated. After all, the world market for cocoa (in a technical sense) was still quite narrow, reserve stocks had not been built up to a comfortable (prewar) basis, and the slightest flaw in the marketing process would inevitably be magnified far beyond its real significance.

Transactions of merchants, brokers, and speculators on the New York Cocoa Exchange have always far exceeded the amount of cocoa imported into the United States and, in most years, total world production. Although it is the world's most important, the New York cocoa market is narrow in comparison with that provided for many international commodities. A large company, like the Hershey Chocolate Corporation—said to use 100,000 tons annually before the war—does not use the Exchange for hedging and “probably never will.” It considers it “impossible” to obtain all of its requirements on the market and hence buys the major part of them direct, through intermediaries.

Yet at times leading manufacturers come into the market as large buyers for deliveries extending as much as a year ahead. Before the war the Nowell Commission reported:

according to traders of experience whose evidence we accept, the buying policy of manufacturers has on occasions appeared to be largely speculative, and has even been described to us as perhaps the most important of the various speculative elements which have together been responsible for excessive fluctuations in the value of cocoa.⁴²

Upon other occasions manufacturers have made heavy purchases in order to build up stocks as a safeguard against high prices caused by outright speculators.⁴³

⁴¹ E. C. Tansley in *Cocoa Conference 1948 . . .*, pp. 78–79.

⁴² *Cmd. 5845*, p. 126. The author would quarrel with the latter part of the quotation as a generalization, but has gained a distinct impression that the first part accurately describes the situation in the United States.

⁴³ Unlike flour millers whose profits nowadays are generally derived from operations alone, the results of many chocolate manufacturers are apparently determined partly by their ability to foresee cocoa price developments and act accordingly.

Narrowness is not the only significant feature of the New York market: although it is of dominating importance in establishing what is generally recognized as a "world" price for raw cocoa, other and sometimes artificial factors are also involved. For example, so inadequate are statistics on cocoa stocks that it has apparently been possible, through an odd form of manipulation, to distort reported figures in the hope of gaining a competitive advantage. Here is how it is done:

The daily published statements of stocks in licensed warehouses are recognized as having an important influence on speculative sentiment, and we [the Nowell Commission] have had evidence of a manufacturer's stocks being transferred to and fro between licensed and unlicensed warehouses apparently for the purpose of misleading other operators and of creating false movements in price. To quote an American witness: "Large quantities changed from Visibles to Invisibles merely to bob up as Visibles a short time later."⁴⁴

The London market was eclipsed by New York before the war and had no chance to develop, inasmuch as several of the largest British manufacturers maintained their own buying establishments in West Africa, and hence made little use of the Exchange. Opportunities for the maneuvering described above seem nonexistent in Great Britain. (After a lapse of some 11 years, trading was resumed in the London Cocoa Terminal Market in January 1951.)

In the spring of 1948 cocoa stocks in licensed warehouses in the United States were still dangerously low—only about 22 days' supply (Chart 15). These stocks, reported by the New York Cocoa Exchange, were the only ones publicly known (deliverable on futures contracts), but manufacturers' stocks were thought sufficient for about 100 days' requirements. By December, warehouse stocks were down from 81,000 bags (of 132 pounds) in March to only 26,000 bags. But the drop in cocoa prices from the 40- to under the 20-cent level, following the unexpectedly good 1948/49 crop, permitted the rebuilding of stocks.

When cocoa prices reached their low in mid-1949, stocks were over 400,000 bags, but only about 100,000 bags were in dealers' hands. Most of the rest was Bahia cocoa shipped to New York "on consignment" while the Brazilian owners waited for better prices before selling. The year before

they tried the same game and painfully missed the boat. Brazil's 1948 cocoa exports declined to 161,000,000 pounds compared to 218,000,000 in 1947 and 264,000,000 prewar. This was partly because of smaller crops but largely

⁴⁴ *Cmd. 5845*, p. 126.

because exporters were unwilling to sell as New York prices plunged from 42¢ last August to 29¢ in December. The Commercial Director of the Instituto de Cacao de Bahia sagely counseled the Instituto (which controls Brazil exports) to hold out. Deadpanned USDA's *Foreign Crops*: "His expectation of price recovery did not materialize."⁴⁵

Apparently many buyers expected cocoa prices to keep sliding, or settle around 15 cents, and were in no hurry to rebuild inventories.

Even with total visible stocks in the United States over 400,000 bags, this was still a far cry from the prewar level of around 1.2 million bags. With the exception of the "big four" of the industry,⁴⁶ buying continued on a hand-to-mouth basis. As the 1948/49 West African crop was largely sold out, and buyers had to wait until October for the new 1949/50 crop, stocks were drawn down to 236,000 bags in November. The new crop was not expected to be as large as the previous season, and cocoa was bid up from around 17 to 28 cents by early 1950. After revised estimates once again indicated a world crop larger than expected, prices declined to 22 cents in March, but soon began a climb back up to the 35- to 40-cent level later in the year.

As the 1950 decade opened, cocoa interests in the United States were not as much concerned about supplies as they had been a few years earlier. Whether or not they had acquired a false sense of security, because of two successive world crops that were considerably larger than had been anticipated, was something that the future would reveal. The decline in consumption at very high prices, although unfavorable for the longer-term growth of the industry, was welcomed by some manufacturers. They credited smaller demand, as well as increased production, with bringing cocoa prices down to more reasonable levels. But that was in the spring. Prices did not remain stable and manufacturers seemed to face the same kind of uncertainties that had been present since the end of the war.

SEARCH FOR NEW COCOA AREAS

When cocoa prices started their spectacular rise upon the removal of price ceilings in the United States in the fall of 1946, world output was around the 600,000-ton level while *potential* consumption was estimated at around 800,000 tons. Prices were bound to rise, yet the

⁴⁵ Merrill Lynch, Pierce, Fenner & Beane, *Investor's Reader*, Aug. 17, 1949, p. 24. The Brazilian stocks referred to were those which the government had earlier been forced to finance by a subsidy to growers of about 10 cents a pound.

⁴⁶ Hershey Chocolate Corporation, Rockwood Company, Inc., Peter-Cailler-Kohler, Walter Baker (division of General Foods).

increase could not, under the circumstances, bring forth much additional production.⁴⁷ High prices could merely effect a distribution of supplies to those able and willing to pay, reduce cocoa consumption, and retard the longer-term growth of the industry—developments not in the best interests of manufacturers, traders, or growers.

Realization that the world supply situation was rapidly deteriorating led commercial and governmental interests on both sides of the Atlantic to pursue a vigorous policy of facilitating expansion of output. Although the British stake in cocoa production was, and is, important for several vital reasons, the United States' interest in assuring reliable supply sources seemed equally important to the industry here. The postwar period of shortage and high cocoa prices stimulated long-deferred and neglected research on the crop and also brought a search for new cocoa areas, as well as a renewed and revived interest in cocoa growing in many of the minor producing countries which at one time figured significantly in the world's cocoa trade.

"New Cocoa Areas" was the subject of the first session of the 1948 Cocoa Conference. Most of the papers dealt with prospects of introducing cocoa into areas other than British West Africa (see Map 12), and of increasing production where it was already grown. The regions or areas specifically discussed by the experts were the Western Hemisphere, British Guiana and British Honduras, the Ivory Coast, British Cameroons, Malaya, and British Borneo.⁴⁸ The general impression left by these papers was that suitable cocoa lands were abundant, but that development could not be rapid, owing to difficulties of transportation, disease, thin populations, lack of suitable planting materials, and similar obstacles.

It seemed to be the consensus of the conference that priority should be given to further development of cocoa growing in *existing* areas, but that explorations and experiments should be initiated in potentially promising *new* areas involving a longer time for development. In the Gold Coast alone it was thought that "within a measurable time" production could be brought to twice the current 200,000-ton level, *provided* swollen shoot could be brought under control.⁴⁹

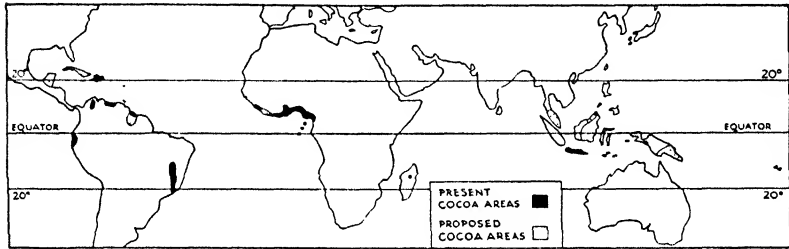
⁴⁷ It was at this time that the Inter-American Social and Economic Council, recognizing the gravity of the situation, created a special Cacao Commission which led in the following year to meetings of experts in Washington and Turrialba. These meetings eventually resulted in the establishment in Costa Rica of a center for cocoa research and education at the Inter-American Institute of Agricultural Sciences, partly financed by American manufacturers.

⁴⁸ Papers by L. J. Schwarz, Sir Geoffrey Evans, W. R. Feaver, J. West, and E. E. Cheesman, and a contribution by D. N. Gillett in *Cocoa Conference 1948*, pp. 1-33.

⁴⁹ Summary of opinions by P. S. Cadbury in *ibid.*, p. 89.

One authority contended that “a rapid increase in production can more readily be obtained in the Gold Coast than in any other country” because adequate labor, land, capital, and incentives were already present.⁵⁰

MAP 12.—PRESENT AND POSSIBLE FUTURE COCOA-GROWING AREAS*



* According to Cadbury Brothers, Ltd.

If these hopes of increased cocoa output in major producing countries can be realized, the relatively small potentials of numerous new areas seem unimportant, except as their development might contribute to diversification of supply sources, and possibly to strengthening the economies of the countries concerned. Certainly a logical and realistic approach to the problem of increasing world cocoa supplies is to stop the decline in production, and to concentrate on the development of existing producing areas, where suitable soil and climate, skilled farmers, and transportation facilities are already available.

Because no one could be certain of the outcome of efforts to stem the spread of diseases, it seemed wise simultaneously to explore the possibilities of new and disease-free areas for growing cocoa. This has been and is being done now. Activities of this character are likely to be pursued for several years in the absence of radical change in the outlook for production which is not now generally anticipated.

United States interests gave encouragement to cocoa-growing projects in several Latin-American countries where prospects seemed good. In Mexico “vast stretches of idle land in Tabasco and Chiapas along the Puerto Mexico–Campache railway” were considered suitable for growing cocoa; the Tapachula Cocoa Experiment Station had developed and on hand in 1948 enough superior planting material for a good start—planting material that was thought to hold “promise of crop yields ten times as great as the current returns from established

⁵⁰ E. L. Hay in *Cocoa Conference 1948*, pp. 46–48.

plantations."⁵¹ In Costa Rica a planting scheme, utilizing bananas as temporary shade, had already been tested by the head of the Cacao Research Center at Turrialba, and was suggested as a guide for the Mexican projects.

Costa Rica itself—a small country noted for its coffee—was thought to have long-range potentialities for becoming a major cocoa producer: "Cacao, rather than coffee, because of the large areas of suitable land available and likely to be made available for its cultivation, promises to become a major factor in the economy of Costa Rica." The opening of a proposed new rail link in the Atlantic zone would add 60,000 hectares to the present 40,000 already considered suitable and available for cocoa. "If this were planted with high yielding clonal stock, Costa Rica could supply 250,000 tons annually, or nearly half the present world production of cacao."⁵² The early realization of such potentials could not, of course, be actually forecast with confidence.

Although the cocoa-growing potentialities of Haiti, Peru, Colombia, Guatemala, and other Central American republics had not, at this time, been investigated by the newly formed American Cocoa Research Committee, the governments of some of these countries had already announced plans for improving and expanding their local industry. In Colombia, for example, not enough cocoa is grown for domestic consumption, and imports have been necessary. Government plans were for increasing production by promoting better cultural methods, and by planting about 25,000 additional acres over a five-year period, at an estimated cost of \$130 per acre.⁵³

Most of the currently important (as well as some of the one-time important) producers of cocoa in Latin America had some kind of plans for expansion of output. The SALTE plan, which was then under consideration in Brazil, called for greater cocoa production; the government of Ecuador had a rehabilitation and new-planting program; and the Dominican Republic was enlarging output and hoping to utilize its newly acquired factory for converting a substantial portion of its crop into chocolate for export. Plans to revive the cocoa industry of Surinam, once thriving but completely abandoned in the mid-1920's after a long struggle against witches'-broom, were also reported. These plans encompassed the importation of disease-resist-

⁵¹ L. J. Schwarz, *Mexican Cocoa Growing Project* (mimeographed), May 21, 1948.

⁵² *Cacao Information Bulletin*, December 1948.

⁵³ R. L. Fowler and J. E. Salinas, "Colombia's Chocolate Crop," *Agriculture in the Americas*, February 1947, VII, 30.

ant and highly productive plants from Trinidad to make available to growers some 400,000 small plants.⁵⁴

In the Far East there are areas in the Philippines and some of the Oceanic Islands, within the sphere of American influence, where potentialities for cocoa growing are believed to exist. At one time or another cocoa has been grown successfully on a number of Pacific islands, and remnants of an industry exist in several places.

While American commercial interests were busy prospecting in potential cocoa-growing areas in Latin America and the South Pacific, the British were not idle. They conducted similar surveys in the Far East. The official report of the 10,000-mile expedition of Dr. E. E. Cheesman concluded that Malaya could eventually produce 100,000 tons of cocoa annually after about 10 years, provided many difficulties were overcome; that Sarawak might produce 10,000 tons; and that the potentialities of North Borneo lay somewhere within this range.⁵⁵

Although it was not expected that cocoa would ever become a major crop in Malaya, its introduction would help diversify the country's economy, and it would probably be successful, especially because the major pests and diseases afflicting cocoa elsewhere were not found in Malaya. It was stated: "The estate companies in Malaya are quite definitely interested in cocoa as a possible adjunct to rubber, wishing to diversify their interests as some insurance against the risks of dependence on a single market."⁵⁶ But native labor might be a problem. Cocoa requires more care than rubber, and Malayan labor is not noted for its eagerness to work any more than necessary to provide essentials and relatively few "luxuries."

Apparently referring to the report of the Colonial Office, the IEF C cocoa experts stated that they were "unable to accept as reliable" the forecasts of a possible eventual production of such magnitude in Malaya and Sarawak.⁵⁷ Nevertheless, British manufacturing interests seemed to be impressed with the potentialities, and were reported seriously considering the establishment of plantations in the Far East, as well as in the Caribbean area.⁵⁸ Some observers, even in Britain,

⁵⁴ *Public Ledger*, Oct. 9, 1948, p. 5.

⁵⁵ Great Britain, Colonial Office, *Report on Potentialities for the Cultivation of Cocoa in Malaya, Sarawak, and North Borneo* (Colonial 230, 1948), pp. 2-3.

⁵⁶ *Ibid.*, p. 12.

⁵⁷ IEF C/Cocoa (49) 10, Feb. 15, 1949 (mimeographed).

⁵⁸ David Gillett, experienced in West African cocoa, conducted an independent survey for Cadbury Brothers, Ltd., and made a separate report, yet traveled the some 10,000 miles in the party of Dr. Cheesman. The Cadbury Board "agreed to enter into a partnership—putting up substantial capital—with a firm who have long been established as rubber planters in these areas." (Address of W. M. Hood to Annual Meet-

considered the publicity given to such activities as merely counter-moves to production encouragement on the part of United States manufacturers in Latin America. Yet British manufacturers have a long record of actively promoting cocoa production in various parts of the world, whereas the American interest is quite recent.

It seems natural that, in view of the spread of diseases in some of the older cocoa-growing areas and political disturbances of one kind or another, some of the larger and far-sighted companies would be exploring the possibilities of alternate sources of supply. The leading British manufacturer, Cadbury Brothers, states frankly that it "owes its existence to West African cocoa exports as much as to any other factor, for *that* cocoa made chocolate and cocoa the homely delights of many rather than the luxury of the few."⁵⁹

A "relatively large scale" planting project was begun in Liberia in 1948 by Stettinius Associates in co-operation with the Liberian government. The initial goal was an annual production of 50,000 tons within 10-12 years. About 1 million trees less than one year old were first planted. Some 10 million seedlings were to be set out, under a five-year plan, in the most promising area for cocoa, said to comprise about 14,000 square miles.⁶⁰ In 1950 it was reported that approximately 8 million trees had been planted in the previous four years on 12,000 acres, and that another 10,000 acres was to be planted during the current year.⁶¹

Expansion possibilities seemed to exist also in French West Africa, Sierra Leone, and the Belgian Congo. In the latter area the United Africa Company had already begun experimental planting of 6,000 acres with the hope that, if successful, a plantation industry could be further developed. "Extensive" cocoa plantings were reported under way in Sierra Leone.⁶² And in one of the older cocoa-growing countries, Ceylon, it was estimated that about 30,000 acres

ing of Men's Shop Committees at Bournville Works, Nov. 15, 1948.) Later, the annual report of Cadbury Brothers (printed in the *Economist*, July 23, 1949, p. 215) stated that the company was then considering, with Harrison and Crosfield, the possibilities of planting in one of the Far Eastern areas. It also indicated that their expert was exploring potentialities in the Caribbean area (Grenada, Trinidad, Puerto Rico, British Honduras) where the company already has established plantation interests. Still later, plans were announced for planting a "large area" by a new company to be called "Malayan Cocoa," formed by Cadbury Brothers, Harrison and Crosfield, and the Colonial Development Corporation.

⁵⁹ Hood, "World Supplies of Raw Cocoa," p. 3.

⁶⁰ Schwarz, *Notes on Cocoa Production and Research* (mimeographed), Mar. 2, 1948.

⁶¹ *Foreign Crops and Markets*, May 15, 1950, p. 489.

⁶² *Ibid.*, Aug. 1, 1949, p. 116.

of low-yielding rubber had been planted to cocoa in recent years.⁶³ There was also some new planting of cocoa and coconuts together on mixed estates in the belief that the two crops would be complementary.

With all such planting activity, even if it were only partially successful, it seemed likely that much-needed additions to the world's cocoa supplies would be forthcoming in a relatively few years. How much annual output would be added could not be foreseen. Nor could future inroads on existing productive capacity, because of the spread of disease, be judged with any degree of accuracy. Future demand for cocoa could be appraised only in terms of price levels and economic conditions in the major consuming countries. None of the factors involved could be properly evaluated; hence it was conceivable that within a relatively short time there might be more cocoa than the world was willing to absorb at prices profitable to producers.

RESEARCH AND DEVELOPMENT SCHEMES

Until the disease problem became acute and threatened the future of the world cocoa economy, scientific research on the crop had lagged. Most of that done earlier was the work of British scientists at the Imperial College of Tropical Agriculture in Trinidad, begun around 1930. The West African Cacao Research Institute at Tafo (Gold Coast) did not begin to function until 1944, and the Inter-American Cacao Center at Turrialba (Costa Rica) was not established until 1947. The latter institution was set up partly in response to the need for trained personnel, upon whom any movement designed to promote cocoa growing outside the British Empire would heavily depend.

Shortly after the end of the war, the American Cocoa Research Committee had been organized for the purpose of encouraging cocoa production generally, but especially within the Western Hemisphere and other areas within the United States' spheres of influence (e.g., Liberia, the Philippines, etc.). It undertook to survey and determine postwar production prospects in all of the principal producing areas, to stimulate research on cocoa culture, and to extend the area devoted to the crop.⁶⁴

Investigations of the Committee led to several conclusions: (1) areas suitable to cocoa growing are plentiful; (2) expansion of acreage in new and relatively disease-free areas is imperative (or at least

⁶³ *Foreign Crops and Markets*, May 8, 1950, p. 453.

⁶⁴ Some of the earlier reports by L. J. Schwarz, which contain a wealth of detail on cocoa in various growing regions of the world, are bound together in *Documentary Material on Cacao, Part I*.

highly desirable); (3) swollen shoot in West Africa and witches' broom in the Western Hemisphere will continue to menace supply for many years; (4) continued research is essential in the fight against diseases and pests and in raising the level of husbandry.⁶⁵

In furtherance of the objectives of American interests in promoting cocoa production, the Inter-American Cacao Center was established in 1947 as part of the Inter-American Institute of Agricultural Sciences. Its function was to co-ordinate research work on cocoa from all interested Latin-American countries, and to train students in the fundamentals of cocoa cultivation. The basic aim of the Center, in the words of its director, is "to assist the Americas to produce more cacao, of better quality, on less land, at a lower cost."⁶⁶ Financial support comes largely from grants from American chocolate manufacturers, and a gift of 100 bearing acres of cocoa by the United Fruit Company.⁶⁷

British cocoa and chocolate manufacturers give financial support to the Imperial College of Tropical Agriculture.⁶⁸ The Colonial Office, furthermore, contributes an equal amount, while the Gold Coast and Nigerian marketing boards have supplied endowment funds for the WACRI from their profits. Other types of assistance have also been provided by British manufacturers, such as Cadbury Brothers' transfer of estates in the West Indies to the government for experimental purposes.

The research programs at both British institutions have been stepped up as funds and staff have become available. The scope of their activities has been enlarged. Fundamental research on the crop—often impracticable before—is well started. Yet the major portion of efforts and funds has been devoted to the disease problem—an emphasis likely to continue for some time.

Research on cocoa is also being carried on in various places in Latin America, usually on a modest scale. Prior to the establishment of the Cacao Center at Turrialba, the U.S. Department of Agriculture's OFAR had inaugurated projects in Ecuador, Peru, and some other Latin-American countries.

⁶⁵ Schwarz, *Notes on Cocoa Production and Research*, p. 5.

⁶⁶ G. F. Bowman, "Cacao Center at Turrialba," *Foreign Agriculture*, December 1948, XII, 267.

⁶⁷ Interest of this company in cocoa dates back to 1914 when first plantings were made. According to its 1948 annual report, the company had 48,762 acres in cocoa; over half was in Costa Rica and the balance divided between Panama and Ecuador.

⁶⁸ Funds from the industry are raised by the payment of 2*d.* per cwt. on the quantity of cocoa each manufacturer uses.

Scientific research on cocoa in Brazil apparently has not been pursued very vigorously until fairly recently. Perhaps the reasons were the relative freedom from diseases and pests in Bahia, and the greater urgency for developing transportation and marketing facilities. However, in 1942 the Cocoa Institute began work on the graft ant (*formiga de enxerto*), the most serious pest of the local cocoa belt. It is reported that the experimental station at Uruçuca "has done and is doing a thorough and creditable job of research on cacao culture in all its phases."⁶⁹

The campaign against swollen shoot. — During 1946/47 cocoa production in the Gold Coast fell to a new low of 182,000 tons, some 44,000 tons less than the average output of the previous seven years. Because of swollen shoot disease, cocoa production had declined in ten years by approximately one-third, and agricultural officials foresaw "the complete elimination of the crop in a few years" unless the disease was controlled.⁷⁰ Aside from more vigorous pursuit of research by the West African Cacao Research Institute, a permanent Cocoa Disease Control and Rehabilitation section within the Department of Agriculture was set up, and legislation was enacted in 1946 to permit direct governmental control of the disease by cutting out infected trees.

About one-eighth of the some 400 million cocoa trees in the Gold Coast had been affected by swollen shoot by mid-1948. The rate of contagion was about 15 million trees yearly. Some 2.5 million trees were destroyed by voluntary and compulsory action between August 1945 and December 1947, but compulsion was discontinued in April 1948, after riots in February of that year threatened to bring production to a standstill. Apparently the compulsory program was made the target for attack by local political leaders who were seeking to capitalize on general unrest among the people of the country.

A commission was appointed in 1948 to investigate the disturbances in the Gold Coast, and "to make recommendations on any matter arising from their enquiry." The Watson Report went considerably beyond the immediate problem of furthering the program of cutting out diseased cocoa trees.⁷¹ It considered the disturbances an expression of unrest caused by political, economic, and social

⁶⁹ Bowman, *Cacao Information Bulletin*, January 1949.

⁷⁰ Great Britain, Gold Coast Colony, *Report on the Department of Agriculture . . . , 1946-47* (Accra, 1947), p. 5.

⁷¹ Colonial Office Paper 231. In its reply and comments (Paper 232) the Colonial Office indicated a certain embarrassment over the fact that the Committee had taken literally the assignment to make recommendations "on any matter arising from their enquiry."

factors; and that only an attack on all three fronts would remove the suspicion and distrust in the minds of cocoa farmers.⁷² Nevertheless, it suggested further scientific investigation of the disease problem, by non-British experts, in order to restore the farmer's faith in the unbiased nature of the recommendations he was receiving on the control of swollen shoot.⁷³

The Colonial Office was quick to act, prodded by cocoa manufacturers,⁷⁴ and, through the co-operation of the United Nations Food and Agriculture Organization, another investigating commission visited West Africa. This non-British panel of experts soon made a report confirming previous recommendations of local scientists, especially those at the West African Cacao Research Institute, that the "basic method" for the control of swollen shoot disease was "the removal of sources of infection," and this meant "the cutting out of millions of diseased cacao trees and an undetermined number of wild host trees."⁷⁵ It further concluded that "inadequate attention" had been given to the problem to date, and that if the disease was "to be effectively checked, immediate action on a huge scale is imperative," and it recommended prompt resumption of the cutting-out program.⁷⁶

⁷² The Colonial Office endorsed some of the recommended constitutional advances "in principle," stated that others suggested were already in force or under consideration, and denied government inactivity on the economic front. Other criticisms of the Watson Report came from other quarters. For example, see remarks by Lord Rennell in *Hansard*, 158, 2, Sept. 15, 1948, pp. 48-49, 53-54; and by Viscount Swinton, *ibid.*, pp. 60-61. On the scope of the Watson Report, the latter commented, in part: "I must confess to some surprise that the three gentlemen who were instructed to enquire into a series of engineered local riots . . . have felt themselves divinely commissioned . . . to give their conclusions . . . on all the varied and complex questions of West African life and administration."

⁷³ Some of the rumors circulated among the uneducated farmers were reported by the Watson Commission: "we were told . . . of the most fantastic and malicious stories . . . to illustrate: (i) Britain intends to sell the Gold Coast to the United States but wished to ensure the death of the cocoa industry to avoid subsequent competition. (ii) The large importing firms, such as the United Africa Company, are starting big plantations in the Far East or in East Africa, and are anxious to reduce West African production." Colonial Office Paper 231, pp. 49-50.

⁷⁴ The industry made its own check-up on the research work being done at Tafo and the campaigns for the control of swollen shoot and rehabilitation. See Cacao Research Panel . . . , *Report on a Visit to the Gold Coast and Nigeria, October-November 1948*. A year earlier Cadbury Brothers had made their own investigation. See P. S. Cadbury, *Report . . . on a Visit to the Gold Coast and Nigeria, November-December, 1947* (privately printed by Cadbury Brothers, Ltd.).

⁷⁵ Great Britain, Colonial Office, *Report of the Commission of Enquiry into the Swollen Shoot Disease of Cacao in the Gold Coast* (Colonial 236, 1948), pp. 3, 9.

⁷⁶ *Ibid.*, pp. 4, 8. The Commission also made certain recommendations, classed as "subsidiary measures," e.g., planting in straight lines, because it was "difficult to imagine how any mechanical operation can be carried out unless straight line planting is adopted" (p. 5); the use of "seed of better and earlier maturing varieties" in rehabilitation; the use of DDT on *young* plants, and so on (p. 6).

The original scheme for rehabilitation grants to cocoa farmers in the Gold Coast was to cost about £3 million, and involved payment of £5 for every acre of *cocoa lost* "as soon as possible" after cutting out; but it was hoped that in the future the payment could be made at the time of cutting out.⁷⁷ Farmers who replanted and kept their farms free of disease in the future by removing all diseased trees could qualify for additional grants, up to £7 for each acre replanted, when the trees were established. Thus the total grant for which a cocoa farmer could qualify amounted to £12 per acre.

This compensation was considered inadequate by many observers at the time, and not likely to secure effective results. So it proved to be. Shortly after the Swollen Shoot Commission made its report, the Gold Coast government announced an increase in the grant for cutting out and replanting, from £12 to £40 an acre. Although cutting out was resumed, and some 3.3 million trees were eliminated in the year ending September 30, 1949, the program was still voluntary.

Government authorities were thus called upon to use every power of persuasion to impress growers with the need for drastic action. If the response was not sufficient, many were inclined to agree with the *Economist* that "it may be true that a people which deliberately allows its main asset to be destroyed is not fit for responsible government."⁷⁸

PRODUCTION AND MARKETING PROSPECTS

Just before World War II world cocoa supplies and demand were in approximate balance at around 700,000 tons. Deterioration in the supply situation set in during the war and a "crisis" stage was reached in the postwar period. For reasons already made clear, world cocoa production was inadequate to meet demand for a number of years, and consumption was curtailed as prices rose.

In the late 1940's aggregate *average* world production of cocoa was expected by the best informed to be maintained at around 600,000 tons for several years. High prices and favorable growing conditions resulted in a 1949 crop some 90,000 tons above this level, and there was a tendency at the close of the decade to raise estimates for the near term to around 650,000 tons.

Early in 1949 the IEF's experts estimated possible future world cocoa production of the 1950-54 period at 645,700 to 705,700 (long)

⁷⁷ Gold Coast Colony, Public Relations Department, *Rehabilitation Grants to Cocoa Farmers* (Accra, 1948), p. 3.

⁷⁸ Jan. 8, 1949, p. 52. Longer-range development programs in West Africa are outlined in Chapter 18.

tons (Table 19).⁷⁹ At least one authority in the United States considered this range about 40,000 tons too low. In any event, guesses on both sides of the Atlantic on world cocoa supplies in the early 1950's ranged between about 645 to 745 thousand tons—a sufficiently substantial difference to lead to continued gyrations in cocoa prices.

World cocoa demand for the “next year or two” was variously estimated at around 650,000–700,000 tons as the 1950 decade opened. But some 35,000 tons extra output annually was considered necessary merely to keep pace with population growth in the principal consuming countries. At such a rate even the higher estimates of prospective production by the mid-1950's would fall short of requirements. It seemed highly unlikely, however, that the world cocoa situation would remain sufficiently static to justify projections very far into the future. Nevertheless, serious problems of distribution seemed in the offing.

Conceding that the demand for cocoa is “undoubtedly elastic to some degree,” the IEFC Committee on Cocoa could not, under conditions prevailing in 1949, say to what extent. It pointed out that prewar world consumption averaged 660,000 tons annually, when

TABLE 19.—ESTIMATES OF FUTURE COCOA PRODUCTION
(*Thousand long tons*)

Country	IEFC ^a (1950-54)	Woodhouse ^b (1950-51)
Gold Coast	180-220 ^c	240
Nigeria	110	100
French West Africa	90	80
Other	27.5	22
Total Africa	407.5-447.5	442
Brazil	130-150	120
Other Latin America	101	101
Total America	231-251	202
Asia and Oceania	7.2	6
World total	645.7-705.7	650

^a IEFC/Cocoa (49) 10, Feb. 15, 1949.

^b C. H. Woodhouse paper at Cocoa Conference held in London, Aug. 30-Sept. 1, 1949. These estimates of future production were for “the next year or two.”

^c Some authorities consider this range too low by about 40,000 tons. Cocoa production statistics for West Africa are generally deficient, and the amount of new production in the interior is not precisely known.

⁷⁹ IEFC/Cocoa (49) 10, Feb. 15, 1949.

cocoa sold around 5.5 cents; and about 600,000 tons in 1947/48, when the average price was about 39 cents per pound, and when "many countries were buying quantities much below their requirements or were from various causes unable to buy at all."⁸⁰ The Committee concluded that it was "reasonable to assume that had consuming countries been unimpeded by balance of payment difficulties and other extraneous obstacles, the price might easily have risen further."

Before the war world cocoa consumption was growing at a rate of about 4 percent annually, but the war interrupted the trend. Meanwhile population increased and, in the postwar period, higher living levels came to prevail and increased industrialization took place in some of the principal cocoa-consuming countries. All of these developments suggested a resumption of the upward trend in world demand at an accelerated rate.

Yet participants at the 1949 Cocoa Conference were doubtful that this potential demand would, or could, express itself within the few years ahead. Their response to a principal speaker's estimate of average world production, at around 650,000 tons for a few years ahead, was that it was optimistic. On the other hand, they generally felt that the speaker's estimate of around 656,000 tons for world consumption (Table 20) was too pessimistic.⁸¹ Most participants, however, conceded that forecasting demand was extremely difficult, and their views on higher potentialities were of a somewhat longer-term nature. World supplies (and prices) would be the limiting factor in consumption until many necessary adjustments could occur.

The 1948/49 world cocoa crop, estimated in October 1948 by the IEFC at 600,000 tons, turned out to be about one-sixth larger. In revising its estimate to 700,000 tons in February 1949, the IEFC cautioned against overoptimism because of a larger Gold Coast outturn than expected. It was not any lessening effects of swollen shoot, but "exceptionally favourable factors which cannot be relied upon to recur simultaneously on another occasion" that produced the surprise.⁸²

⁸⁰ IEFC/Cocoa (49) 10, Feb. 15, 1949.

⁸¹ Discussion of Woodhouse paper in *Cocoa Conference 1949*, pp. 10-13. Woodhouse gave his reasons for expecting the 1950/52 world consumption breakdown (shown in Table 20) on pp. 4-7 of the report cited.

Later, in 1950, the Bahia Cocoa Trade Commission estimated world production for the 1949/50 season at 748,000 metric tons and consumption at 757,000. Deducting 55,000 tons for consumption in producing countries still left estimated absorption by importing countries of 702,000 tons.

⁸² IEFC/Cocoa (49) 10, Feb. 15, 1949. In connection with the "surprise," various members of the New York cocoa trade reported to the author that cocoa began

Among these favorable factors were "almost perfect" climatic conditions, unexpectedly good yields from diseased but still surviving trees, carry-over stocks held in expectation of higher prices, and "some possibility" of limited production from trees coming into bearing for the first time. The Committee also noted the incentive for producers to secure maximum collection from the considerable price increases granted in 1947/48 and 1948/49. This latter factor, along with favorable weather, would seem to be of greatest importance in explaining the larger output despite increased incidence of swollen shoot disease.

Commenting on the price decline that accompanied the larger harvest, the *Economist* thought it saw longer-term advantages:

. . . lower cocoa prices might prove an advantage to West Africa, despite the loss of dollar earnings. Long-term prosperity . . . depends on the eradication

TABLE 20.—ACTUAL AND ESTIMATED WORLD COCOA IMPORTS, AND THEIR DISTRIBUTION AMONG THE PRINCIPAL CONSUMING COUNTRIES, PREWAR AND 1947/48 TO 1950/52*

	Prewar average 1934-38	Crop year 1947/48	Estimate for 1948/49	Estimate for 1950/52
World imports (1,000 metric tons)	651.4	574.6	687.0	656.0
Percent distribution				
Europe	57.3	46.4	53.8	53.3
United Kingdom	15.0	18.0	19.4	18.2
Germany	12.4	8	3.7	4.6
Netherlands	9.5	5.4	5.7	6.1
France	6.6	8.7	9.1	9.2
Others	13.8	13.5	15.9	15.2
Americas	40.6	49.6	42.1	43.6
United States	37.2	44.2	37.8	39.6
Canada	1.8	3.2	2.5	2.5
Others	1.6	2.2	1.8	1.5
Rest of world	2.1	4.0	4.1	3.1

* Data from Appendix I of *Cocoa Conference 1949*, p. 103. Prewar figures are from U.S. Dept. Comm. *World Trade in Cocoa*; 1948 and 1949 figures are Woodhouse's estimates based on IEFC allocations; and the 1950/52 figures are his personal "tentative guess."

to show up in greater-than-expected volume before any revision in the crop estimate was made. Some of the more skeptical thought that better crop information was available on the other side of the Atlantic all along, pointing out the tendency of production estimates to be biased for maximum favorable influence on prices, and the heavy dependence upon British sources for any information.

of swollen shoot, but native growers can hardly be blamed for refusing to uproot trees when their products command a high price. Now . . . the task of controlling the disease may be easier, but the growers must first be made to feel the impact of these lower prices.⁸³

Early forecasts of the 1949/50 world cocoa crop were later revised upward, as they had been for the previous season. In fact, in the spring of 1950, the current crop was expected to be almost as large as the "surprisingly" big 1948/49 crop, and above the prewar average output. Brazil was expected to have a record crop,⁸⁴ and Gold Coast production was again estimated at a higher level than had earlier been thought possible. Increased world supplies and improvement in the inventory position of manufacturers again caused prices to ease, for a time at least.

A year earlier New York prices broke to the 17-to-18-cent level under somewhat similar crop conditions. After a recovery, they again declined as the size of the forthcoming crop became fairly well known. Early in 1950, it did not seem likely that all the cocoa in sight would be taken up by consuming countries at prevailing prices. Traders looked for still lower prices that would justify manufacturers in the United States in increasing the size of chocolate bars, and hence their aggregate grinding tonnage. Instead, prices were to rise again, especially after the outbreak of war in Korea, and manufacturers, as previously noted, were once more forced to give consideration to merchandising problems created by the high cost of cocoa beans.

This is not the place to forecast future developments in world cocoa production and consumption: the review in foregoing pages is intended for another purpose. It is designed to help understand the ways and means by which the "cocoa crisis" of the early postwar years might ultimately be resolved. It may also serve a useful purpose if it cautions against possible assumptions that the critical world cocoa situation of recent years will continue for any extended period into the future.

Portions of the three chapters that follow in Part IV are intended to round out the analysis of preceding chapters, considering coffee, tea, and cocoa simultaneously where appropriate.

⁸³ Mar. 12, 1949, p. 484.

⁸⁴ In the early years of the war "considerable" new planting of cocoa took place in Brazil, but little information is available on what has happened in recent postwar years. Indications are, however, that the downward trend in Brazilian output over the past decade has been reversed.

PART IV
TRENDS AND PROBLEMS

CHAPTER 17

DEMAND, CONSUMPTION, AND COMPETITION

Wartime disruption of the coffee, tea, and cocoa trades, followed by postwar shortages and high prices, created a new interest in the factors most important in influencing the volume of consumption. There was not much agreement on the proper weight to be attached to the various factors recognized as having a bearing upon consumer behavior, but there was ample speculation. Radically changed market conditions generated worries about the future of the respective industries. These were offset only to the extent that the world economy was also in an inflationary period.

In consumption, coffee, tea, and cocoa are frequently rivals for consumer favor; in production they sometimes compete for land, labor, and capital; and in the economic policies of both producing and consuming countries they are often evaluated in terms of their relative contribution to general welfare, trade, state revenues, and similar national considerations. Of the spheres in which the three commodities are in some sense competitive, the most important is that concerned with consumer preferences, decisions, purchasing power, and similar determinants that help to make a market.

DEMAND CHARACTERISTICS ESSENTIALLY UNCHANGED

Historically, the commercial demand for cocoa was based on its use as a beverage, but since this is no longer true, most of the discussion that follows applies only to coffee and tea. The stimulating property in cocoa is so slight that use does not tend to be habit-forming. Demand characteristics for chocolate in its numerous forms are quite different from those for coffee and tea, and more complex.

When an established part of a consumer's dietary, coffee or tea (sometimes both) tend to be used in fairly constant quantities almost regardless of price variations within a rather wide range. If war did not deprive users of their favorite beverage altogether, it imposed conditions in most countries having the effect of modifying customary practices in the quantity of coffee and tea used per cup, and in the number of cups consumed per day or week. It also stimulated the use of adulterants and substitutes, as well as influencing the quality

of the genuine product available. For many consumers these were merely passing influences. For millions of others the postwar period brought little relief; they were forced to modify their wants and change their habits.

With only one important use, the demand for coffee and tea has always been considered as reflecting consumer wants for a special type of beverage. Minor miscellaneous uses are mostly derived from this demand and are related to flavor characteristics, stimulating properties, or both.¹ Consumer tastes in tea are generally for a specific kind or type of tea. Those accustomed to drinking black tea tend to use green or oolong only infrequently for the purpose of a change. The green-tea drinker may also use some oolong but rarely craves black tea. Coffee drinkers, on the other hand, may have preferences as to blends and may be able to distinguish between Brazilian coffee and the milder growths from other Latin-American countries, but a good cup of satisfying coffee can be obtained from quite a variety of combinations in the blend. Coffee in beverage form does not vary much in color except as the brew is strong or weak. Black tea and green tea, however, differ in appearance in the cup as well as in taste. The visual difference introduces a psychological factor which probably further discourages substitution.

Once habits are formed, the tea drinker tends to remain a tea drinker, and the substitution of an alternative beverage such as coffee is not readily made. Furthermore, tea is ordinarily by far the most inexpensive of widely consumed beverages.² The demand for tea, therefore, is likely to be even more constant than the demand for coffee. Coffee has a relatively inelastic demand, but its price cannot be ignored by consumers except within certain limits. The limits for tea are greater because the cost per cup is so much lower.

In countries with a high per capita consumption of tea, demand tends to be least elastic when tea prices are low and most elastic when they are high.³ In tea-drinking countries where demand is farther

¹ Many unsuccessful attempts have been made to find nonbeverage uses for coffee that would be commercially feasible. Just before the war, when coffee was still in surplus supply in Brazil, much was heard of the potentialities for using it in industry in the making of plastics. The government-financed plants set up in São Paulo in the early 1940's to make "cafelite" never got into regular operation. With the war, a series of smaller crops, and easing of the surplus problem, the Brazilian enthusiasm for a project that probably could never be economically sound seemed to wane.

² Yerba maté is generally less expensive in the areas in which it is consumed, but these are confined to a few South American countries.

³ An analysis of the demand for tea in the United Kingdom, covering the years 1924 through 1936—a period including both high and low prices for tea and con-

from the saturation point, or where other factors are involved such as the competition of alternative beverages, the influence of tea prices and income upon consumption is likely to be noticeably different.⁴

Differences in the demand for coffee or tea are thus not always matters of taste or habit. Among sections of the population of Europe, low purchasing power combined with high taxes on imports or consumption, and the availability of substitutes, effectively kept down the level of consumption before the war and continue to do so today. But when these factors are not all-important and when they become less important, opportunities exist for refinements in the nature of demand.

During the war many minor changes took place, sometimes a continuation of prewar tendencies, but more often the result of circumstances. Strictly speaking, consumers accepted what the trade had to offer, and this acceptance, when considered as an improvement, became a characteristic of demand. Thus, coffee consumers in the United States were offered more mild coffees than ever before, and liked them, continuing a prewar trend (with regional exceptions) which was accelerated when Brazils were not available in adequate quantities because of shipping difficulties. On the other hand, British consumers accepted Brazils in their blends and continue to do so, a reversal of a prewar preference exclusively for milds.

Methods of purchase, packaging, preparation, and so on, are all features of demand, always important to the trade, but of minor significance individually in the over-all market situation.⁵ When tin was in short supply during the war, glass containers were used in packaging and many believed this enforced change to foreshadow a new preference characteristic. Yet whether it did or not was a matter of concern primarily to container manufacturers.

Wherever coffee or tea was rationed, consumers tended to use less per cup, making a weaker brew, but increasing the number of sumption goods generally, as well as years of prosperity and depression—indicates that a decrease of 5 percent in the retail price of tea or an increase of 10 percent in income causes an increase of about 2.5 percent in purchases for consumption. E. J. Broster, "Elasticities of Demand for Tea and Price-Fixing Policy," *Review of Economic Studies*, June 1939, VI, 172.

⁴ Prewar studies in a number of countries suggested to the International Tea Market Expansion Board that the competitive threat to tea of "soft" drinks was greater than that of such obvious alternatives as coffee.

⁵ Preferences of coffee consumers in the United States with regard to types, methods of purchase, packaging, preparation, and so on, are discussed in Wickizer, *World Coffee Economy*, pp. 55-56. Although some trends were temporarily interrupted by the war, they were soon resumed in postwar years; and the situation today is not greatly changed from the mid-1930's and 1940's.

cups available or the number of occasions upon which they could enjoy their favorite beverage. Trade interests were concerned that habits thus formed would be difficult to change and that a continuation of such practices would be detrimental to the industry.

In the United States the short period of coffee rationing made for a weaker beverage, but new habits were not formed by most coffee drinkers. In postwar years, however, with high coffee prices, there was a noticeable tendency for public eating places to stretch supplies, serve a weak beverage, and thereby hope to avoid increasing prices.⁶ In Great Britain, tea rationing lasted for so long a period that habits in brewing were definitely altered, much to the concern of the tea trade.

PRICE-PURCHASING POWER ROLE IN CONSUMPTION

Even when shortages are overcome, adequate supplies do not guarantee resumption or expansion in the consumption of coffee or tea. Prices in relation to purchasing power of consumers and numerous secondary factors must be taken into account.

Since the cup cost of tea is normally much smaller than for coffee, price-income relationships are more important in coffee than in tea consumption. The Coffee Board study group generalized:

In times of rising per capita real income . . . coffee prices can advance along with other food prices without appreciably reducing coffee consumption. . . . On the other hand, a decline in per capita real national income will tend to reduce coffee consumption . . . unless the downward movement of coffee prices relative to food prices is almost double the rate of reduction in real per capita income. . . .⁷

But in reviewing the period 1930-45, the above generalization was considerably qualified (see below). It seems clear, however, that the

⁶ "Restaurants and public eating places have widely and perhaps generally increased the ratio of water to coffee used in coffee brewing. Whereas 2 or 2½ gallons to the pound prevailed prior to recent price increases, a change to 2½ or 3 gallons to the pound has been widely noted" (Coffee Advertising Council, *Coffee*, May-June 1947, p. 3). The situation grew even worse with still higher coffee prices beginning in late 1949.

There is no reason why price adjustments in public eating places must be in round numbers of monetary units, but custom fixes the prices of many items, and the restaurant operator will ordinarily do everything he can by manipulating the portion served before he will change the price. If such manipulations in size or method of serving are too much of a departure from custom, an unhappy choice must be made between keeping the portion fixed and departing from the customary price, or keeping the price the same but departing from customary service. This problem is most acute when costs rise; when they fall, commonly no adjustment is made either in portions or in the selling prices of standard items.

⁷ *Coffee Board Study*, p. 22.

Board considered coffee prices less important than the level of national income in consuming countries.⁸

In commenting on the various explanations for the increase in per capita coffee consumption in the United States, the official organ of the National Coffee Association, on the other hand, was impatient with "coffee men who should know better" and who assumed that income had anything to do with coffee consumption. It added: "If the record proves anything, it proves that a good thoroughgoing depression increases rather than decreases the per capita consumption of coffee"; and, like the Pan-American Coffee Bureau, credited promotional work for the gains in consumption.⁹

But after the spectacular run-up in prices in late 1949, the Association's organ seemed somewhat less confident. The effects on coffee consumption in the United States were difficult to appraise, but "everyone seems to agree that high prices are having a bad effect on consumption of coffee in Brazil. Some estimates on this reduction go as high as 600,000 bags."¹⁰ And in an issue a month later (April 28), it quoted a cable sent to President Dutra of Brazil which read in part:

The coffee trade of the United States respectfully calls to your attention the urgent necessity of intensifying promotion work in this market at earliest possible moment. Consumption being seriously affected by redoubled efforts of all competing beverages which keep the public mind constantly focused on matters of price. If steps not taken soon coffee faces permanent loss of consumer good will which will be unbelievably costly to all producing countries. . . .

Meanwhile the large roasters and distributors of vacuum-packed coffee were testifying before the Gillette subcommittee in March 1950 that high prices "produced only headaches and less business," and in May they were cutting retail prices in the hope of recapturing some of the business that had shifted to lower-priced chain-store brands, packed in bags.

⁸ *Ibid.*, pp. 13, 21-23. The report cites the findings of an unpublished study indicating that "a 10 percent change in per capita real income in the United States, after allowance for changes in the price of coffee relative to other food prices, was associated with a net change in the same direction of 4.3 percent in per capita consumption. On the other hand, a 10 percent decrease in retail coffee prices relative to other food prices, after allowance for changes in per capita income, was connected with a net 2.4 percent increase in per capita consumption."

⁹ *Weekly Letter*, Oct. 15, 1948. "We have said many times before that logically and statistically every pound of sales above 12½ pounds per capita could be attributed to sound practices in the industry and to intelligent promotion." *Ibid.*, May 5, 1950.

¹⁰ *Ibid.*, Mar. 31, 1950.

Also in May, the NCA, in reporting on a meeting of its directors (*Weekly Letter*, May 5, 1950) acknowledged that

there is now no escaping the fact that recent developments have done enormous damage to the industry . . . realistically, we have to face the fact that consumption is off . . . it would be rather slow-witted . . . to think that the loss was a purely temporary thing . . . nothing we or anyone else can say will make the public happy about an increase in the price of a staple commodity. . . . We may be able to avoid serious retaliation by sincerely trying to correct a condition the public seems to think is wrong.

There seemed still to have been some lingering doubt as to the "justice" of consumer reactions to excessively high coffee prices, but no doubt that consumption was down—and this was in a period of essentially full employment, high per capita national income, and generally stable prices for other foodstuffs.

Unlike the coffee industry which, officially at least, tended to minimize the importance of maladjustments in price-purchasing power relationships, the more mature tea industry was deeply concerned over trends in costs that made higher prices necessary. As nearly as one can judge from numerous public statements of spokesmen for the industry over a period of several postwar years, the threat to consumption and the competitive position of tea was generally appreciated and taken seriously.¹¹

Cocoa and chocolate manufacturers had the earliest postwar experience with excessively high prices and felt the effects almost immediately. There was no doubt at all in trade circles about the adverse effects on consumption, as has already been discussed in some detail in Chapter 16. But the factors involved are differently weighted with cocoa, and comparisons with coffee and tea are therefore of little value.

Consumer demand for coffee or tea, as distinguished from trade demand,¹² is made up of a complex of factors which vary from indi-

¹¹ There were a few exceptions. For example, Sir Theodore Chambers of the International Tea Market Expansion Board was quoted in early 1950 as saying that "there was no need to concentrate on cutting down its cost of production, and that tea could easily be sold at such prices as ensured good wages for estate workers, a fair profit for the producer, and a reasonable revenue for the Government." *Tea & Rubber Mail*, Feb. 23, 1950. The editor added: "these generalisations might be accepted with some reserve."

¹² Trade demand over short periods is much more responsive to price changes than is consumer demand. Stocks are built up when prices are low and reduced when they are high. Abundance and low prices stimulate the trade to embark on campaigns not merely to dispose of large stocks, but to raise the level of public demand. Trade demand over longer periods must, of course, reflect consumer demand.

Except in countries imposing heavy duties and taxes on imported coffee, the

vidual to individual, country to country, and from time to time. Once consumers acquire the habit, continued use of coffee or tea seems to depend more upon price than upon income, but this view is frequently disputed and is practically impossible to prove. Both considerations are undoubtedly of prime importance in affecting consumption, but are by no means the only influences.

In discussing long-term variations in demand, especially the "tremendous" increase in per capita consumption of green coffee in the United States between 1930 and 1945, the Coffee Board's study conceded (p. 22) that it "cannot be completely related to the favorable trend of retail coffee prices relative to other food prices and to the rise in levels of real per capita income." Increased consumption "must also be associated with an increased preference for coffee . . . improved cup quality . . . increased availability of properly brewed coffee in public eating establishments, changed dietary habits . . . and institutional coffee advertising . . ."¹³ Yet in looking ahead, the study concluded (p. 23) that *world* coffee consumption "will continue to be influenced primarily by levels of real per capita incomes and secondarily by coffee prices in relation to prices of other food-stuffs."

cost of the raw product is always the largest single item in the retail price. The lower green-coffee prices are, the less effect changes in the green-coffee market will have on retail prices. Conversely, the higher the price of green coffee and the larger the ratio it bears to the retail price, the greater the influence of changes in green-coffee prices. Most of the expenses of transportation, storage, roasting, packaging, and selling tend to remain more or less stable in relation to the volume of coffee handled, regardless of its value.

Trade demand for tea is also influenced by price and supply considerations, but to a smaller degree. The market structure for tea is somewhat different from that of coffee: buyers tend to be concentrated, and seasonal factors are more important. Buying, shipping, and storing are scheduled to effect the movement out of humid, tropical producing areas into temperate storage at seasonal intervals, not only to insure supplies but primarily to conserve the quality of the processed leaf. Green coffee, on the other hand, can be held over in producing areas if necessary without the same kind of deterioration. Since final processing of raw coffee does not occur until it begins to move into consuming channels, the coffee importer has more flexibility in timing his purchases and often can await a favorable market; whereas the tea buyer is more or less obliged to take the season's offerings in order to assure adequate stocks and preserve quality.

¹³ Promotional efforts of producer organizations and the trade can be very helpful in stimulating coffee consumption, but it is doubtful that in the 1930's, promotional efforts alone, however well conceived and executed, could have made much headway in the absence of low prices and other favorable factors. Furthermore, as of 1950, it seemed doubtful that expensive advertising campaigns could increase, let alone maintain, coffee consumption in the United States in the face of record high prices for coffee. Even producer and trade interests were reluctantly forced to admit that the level of prices had something to do with the volume of purchases and consumption.

As pointed out elsewhere, "consistent progress in coffee consumption in the United States throughout the 1930's may be attributed very largely to low retail prices and the generally better quality coffees that were available."¹⁴ The Board's study seemed to give recognition to these (and some other) factors in its explanation, yet somewhat inconsistently shifted its ground when considering the late 1940's. It granted (p. 21) that "extremely low" prices "greatly" increased consumer demand for coffee, and explained the maintenance of demand during the prewar decade of low per capita incomes "primarily because the wholesale price of green coffee declined by about 40 per cent more than the level of world commodity prices."

In apparently relegating coffee prices to a secondary role in consumption, the Board was undoubtedly reflecting the traditional Latin-American view that coffee prices should always be higher. There seems to be no other explanation in the light of its own evidence to the contrary, and the experience of many decades. The reasoning implied is that if higher coffee prices discourage consumption, the remedy lies in raising consumer purchasing power in consuming countries rather than in reducing coffee prices. The holding of such delightful views undoubtedly will make the inevitable future adjustments more difficult.

Until recent postwar years, the tea trade was not greatly concerned over changes in tea prices or in the incomes of consumers. Price changes at retail were not marked, even though wholesale tea prices moved in a fairly wide range. In relation to coffee and cocoa, even these wholesale price fluctuations were moderate. The most important reason for the calm that prevailed in tea circles was the extraordinarily wide leeway tea enjoyed from a competitive standpoint. Appreciable increases in price or reductions in national income would still leave tea easily the cheapest of all widely popular beverages. But recently the margin of difference has not been so great, and the tea trade has stepped up its efforts to maintain and expand its markets.

THE IMPORTANT "SECONDARY" FACTORS

"Other" or secondary factors in coffee, tea, and perhaps to some extent in cocoa consumption may, in the aggregate, rank with price and income considerations, at least over the long term. Once available, consumption of these products by any individual may depend

¹⁴ See Wickizer, *op. cit.*, pp. 50 ff. for detailed analysis.

upon such varied factors as weather, type of occupation, mode of living, age, and environment, quite apart from price-purchasing power considerations. Except for climatic influences, changes occurred for huge numbers of consumers in all these respects during and even after the war.

About the only other well-established and measured factor in consumption not already considered relates to seasonality. Hot beverage consumption is usually at peak levels during winter months and at lowest levels in midsummer, as is to be expected. In the United States, both coffee and tea interests have attempted to encourage consumption in iced form to offset the summer decline in sales.¹⁵ These efforts have met with considerable success; only in the United States have iced tea and coffee attained any appreciable popularity with consumers. It seems reasonable to expect that here, at least, seasonality in consumption will gradually become less marked.

Other factors in the consumption of, and competition among, the three beverages loom large but are not easily measurable. Many millions of Europeans were forced to alter radically their modes of living during the war, change their occupations, or both; and millions continue to live and work under conditions far different from any prewar "normal." Aside from considerations of buying or trading power, habits acquired under the stress of the times are not likely to change quickly. It is perhaps idle even to speculate on the effect of these influences on consumption. Years may elapse before there is a return to prewar levels of coffee, tea, or cocoa consumption in many European countries, if then. In all countries great numbers of people were drawn into war or defense work only to return to other occu-

¹⁵ Although there is a definite seasonal behavior in coffee consumption in the United States (peak somewhere between November-March and low in July or August), the differences are not especially marked. Summer-quarter consumption is probably not over 15 percent lower than the average of the other three quarters. About 60 percent of annual tea consumption takes place in the fall, winter, and spring quarters (hot tea), while the other 40 percent occurs in the summer quarter (mostly iced tea.)

Iced tea and tea bags have long enjoyed a popularity in the United States found in no other country. In recent years coffee interests have been active in the promotion of iced coffee, never as popular as iced tea as a summertime beverage. The tea industry's promotional organization in the United States (Tea Bureau, Inc.) takes the approach that hot and iced tea are two separate beverages and should be promoted accordingly. In one of its surveys the conclusion was reached that 40 percent of Americans drink iced tea but never hot tea (*vs.* only 1 percent for coffee). "That is the heart of tea's two-beverage story. Only tea makes two *distinct* beverages." (Tea Bureau, Inc., *Iced Tea: A Nation-wide Study of American Beverage Habits in the Summertime*. Undated, but survey made August 1947.)

pations, new modes of living, and modified dietary habits. Such changes are reflected in beverage consumption.¹⁶

Explanation of the hold of tea on consumers in all parts of the world tends to be given in terms of "persistent availability" rather than in terms of price-purchasing power factors. This is one of the important "other" or secondary factors that the Coffee Board recognized as having pertinence in coffee consumption in the United States, even though per capita national income was considered the principal one.

Perhaps the most useful way in which to group and separate the "other" factors in coffee and tea consumption from price and income considerations is to ponder a concept used by Gervas Huxley. In an interesting lecture, the organizing director of the International Tea Market Expansion Board attempted to answer, in terms of "persistent availability," the questions: *Why do some countries drink tea and others coffee? What, in fact, is the basic reason that has established the world's present beverage habits?* The concept is explained as follows:

we will find our beverage [tea] established where it has, over a long period, been made more persistently available to the consumer than other beverages, by the enterprise of producers, merchants and distributors; and that . . . the same holds good for coffee and other beverages. . . . I don't only mean the physical fact that the beverage can be obtained if someone wants it. My term also means that in one way or another the beverage has been consistently and favourably kept before the public, that it has been readily procurable, that good facilities have been provided for its proper making and consumption, and that it has also been persistently available in terms of the quality that the consumer wants and of the price that he can afford to pay.¹⁷

Only at the end of the quotation is there recognition of the price-purchasing power factors previously discussed.

With tea the subordination of price and income considerations

¹⁶ For example, many women who entered industry during the war did not return to a traditional housewife's role. The frequency of dining out is affected by such changes, as are personal schedules and habits and the type and quantity of beverage consumption. At least 20 percent of the coffee consumed in the United States is in public and institutional eating places.

¹⁷ *The Consumption of Tea* (a lecture given to the City of London College on Dec. 2, 1948) (London, n.d.), pp. 2-3. Huxley's speculation explained national preferences in terms of the history of commercial enterprise, trade routes, wars, geographical relationships, and so on.

Also on the beverage habits of different peoples, see a popular account by R. H. Cheney, "The Biology and Economics of the Beverage Industry" in *Economic Botany*, July-September 1947, I, 268-73.

has, in the past at least, apparently been justified, as reflected in the lecturer's further remarks:

I myself have long come to the conclusion that it is quality and not price that is the more important factor in promoting the sale of tea. . . . All the world over, indeed, I have found that it is the thrifty masses—not the few rich—who, when they become conscious of the basic economy of tea, choose good quality and thereby become tea's largest consumers.

Quality of coffee consumed also bears a relationship to the individual consumer's income status, but it seems to be less marked, especially in the United States, and commonly is just the opposite of that described above for tea.¹⁸

Once coffee, tea, or cocoa drinking was popular because it was fashionable, but actual consumption was limited to those who could afford the luxury. All three beverages were ultimately introduced into the home from the public service field. Although perhaps not as important as formerly, sociability and customs are still factors of far greater influence in European than in American beverage consumption.

Throughout Europe modern versions of the early coffeehouses played an important role in beverage consumption in prewar years. These institutions varied greatly in size, service, and patronage; but they seem to have had one main function in common—to provide meeting places for all who could afford the price of a cup of coffee, or a reasonable facsimile. This price often included music, entertainment, the use of newspapers and periodicals, and sometimes between-meals food. Small establishments serving only coffee, soft drinks, and limited food companions to such beverages were common in small as well as large cities. Sidewalk or boulevard cafés served wines, liquors, and foods in addition to coffee, while still another type of café provided entertainment.¹⁹

¹⁸ In periods of depression, the prices of better-quality coffees tend to decline less than those for cheaper grades, since demand for the former comes from groups either less affected or better able to withstand a shrinkage in income without seriously cutting into their food budget.

¹⁹ Similar institutions are found in Latin America, but in the United States there is no true counterpart of the Continental cafés where the time of day may be passed in drinking, eating, reading, or talking to friends. In the eighteenth century, coffeehouses flourished in such cities as Boston, New York, and Philadelphia, much as they did in England and on the Continent. After they lost popularity, however, no substitute built around the drinking of coffee was evolved. Today in the United States, bars and cocktail lounges are about the closest approach to an institution where companionship plays an important part in consumption. At one time coffee producers were inclined to regard the growth of consumption of alcoholic liquors as a deterrent to the expansion of coffee consumption. Contrary to popular belief,

The war probably did not change the habits of Europeans permanently, but in the early postwar years patronage of these institutions was decidedly below that which prevailed earlier. The combination of high prices, poor substitutes for the beverage desired, and preoccupation with more important matters of reconstruction or making a living, all conspired to reduce the role of such institutions in European beverage consumption.

Wherever coffee is the representative hot drink, the vast majority of adults are consumers. In the United States probably four-fifths or more of all persons over 16 years of age are coffee drinkers. The age at which coffee becomes a habitual part of the individual's consumption varies, but the average has probably risen with the increasingly general availability of milk and the influence of health teachings on consumption by children and adolescents.²⁰ Among the elderly—now a larger proportion of the population than formerly—medical advice has probably led to a reduction in the proportion of consumers drinking coffee, as well as to a reduction in their per capita consumption.

Essentially the same factors that explain recent past rates of coffee and tea consumption will determine future or potential rates, but the combinations are subject to change. Demand is largely a matter of consumer psychology, individual purchasing power in relation to prices, availability and prices of competing and alternative beverages, and the cost of desired additions to the beverage such as sugar and cream or milk.²¹ Unlike many basic foodstuffs, coffee and tea are not commodities with relatively narrow limits to the expansion of consumption, but there are different degrees of utility or satisfaction imputed to each cup consumed. Factors other than "satura-

there is little convincing evidence that prohibition in the United States was a boon to coffee consumption.

²⁰ Restaurant operators catering to teen-agers, especially between meals, report almost no coffee sales, and those operating near schools and colleges report that students generally drink milk. Joint Committee of the Restaurant and Coffee Industries, *Report on Coffee in Public Eating Places* (New York, 1948), p. 45.

²¹ The demands for coffee, tea, and sugar are interrelated, but measurement of this interrelationship is difficult. There are few markets in which coffee and tea are consumed in roughly equal volume, data on consumption are usually inadequate, and the chief demand for sugar is commonly for purposes other than sweetening coffee or tea. Schultz analyzed Canadian demands for these products as a test of the special theory of interrelationships, but, aside from confirming the competitive relationship between coffee and tea and the "completing" relationship of sugar to both commodities, his results were inconclusive. Per capita imports were used as a measure of consumption but the data were insufficiently accurate for the purpose of measuring the interrelations of the demands. See Henry Schultz, *The Theory and Measurement of Demand* (Chicago, 1938), pp. 585-89.

tion" are usually responsible for the limits placed upon each individual's consumption.²²

COMPETITION AND SUBSTITUTES

Among beverages of a habit-forming character, it is necessary to make certain qualifications with respect to their "competitive" relationships. Considerable changes in the price relationships between coffee and tea, for example, have only limited effects upon per capita consumption of either. Coffee and tea are important alternatives for consumers primarily on the basis of taste preferences, and secondarily on the basis of price. They are competitive in the habit-determining sense, but less so by the ordinary yardstick of relative prices. Only when both are very expensive, or when the usual price relationship between the two is radically altered, does the price aspect assume more importance than the habit or custom aspect. The same type of "competitive" relationship exists between wine and beer, and between alcoholic and nonalcoholic habit-forming beverages.

Consumer demand for coffee or tea is undoubtedly influenced by the availability and prices of other beverages and a wide assortment of drinks both hot and cold, but it is very difficult to appraise the importance of such influences. Some other hot beverages such as cocoa and maté²³ may be directly competitive in some regions and for some consumers. For others, soft drinks, wine,²⁴ and beer, and

²² The stimulating effect of coffee drinking becomes displeasing for some if carried beyond a certain point, and for a very small percentage of the adult population the response to caffeine stimulation is unfavorable. This has given rise to the manufacture of commercial products in which the caffeine content is reduced, but thus far these have made no marked contribution to the expansion of consumption. The literature on the effect of coffee drinking on the individual is voluminous. In connection with a review of it, S. C. Prescott has this to say: "Careful study has brought out the interesting fact that with coffee, as with numerous other articles of food, there are personal or individual idiosyncrasies; that a small percentage of the population responds unfavorably to caffeine stimulation, and a still smaller percentage cannot use coffee without unfavorable results, although they may be able to drink tea which contains caffeine, and vice versa. This recognition of specialized behavior in a few instances—probably not more than one per cent of the population—gives us a basis by which we may explain the diverse opinions which have arisen." See "Pharmacology of the Coffee Drink," in Ukers, *All About Coffee*, p. 307.

²³ Maté (yerba maté) is produced in Argentina, Brazil, and Paraguay, and is consumed mostly in the rural areas of these countries, Uruguay, and Chile. Some 10 million persons are estimated to be regular users of this tealike beverage, which is brewed from the toasted and ground tender leaves of a wild or cultivated tree. South American consumption is estimated at about 180,000 metric tons annually.

²⁴ Few trades are of greater antiquity than that in wine, yet in countries traditionally dependent upon wine imports, supplies have for many centuries been supplemented by locally produced beer. In the 19th century, tea, coffee, and cocoa

even milk may be just as competitive when their consumption is an alternative for a cup of coffee or tea. Decaffeinated coffee may offer competition, and also various cereal drinks, but in general this competition is very limited.

In the United States, at least, it is undoubtedly still true that the "use of coffee as a price leader in retail sales is a far more important element in coffee marketing than is the competition of substitutes."²⁵ In countries less strongly committed to the coffee- or tea-drinking habit, the competition of other beverages is more important. But in most such cases relative costs of substitutes or alternatives are also a major consideration in consumption.²⁶ The consumer of cereal coffee substitutes would doubtless prefer real coffee, but the addition of chicory to coffee is not regarded as adulteration by many consumers who have developed a coffee-and-chicory taste.²⁷

So-called "cola," "soft," or "milk" drinks seem to worry coffee and tea interests as much as, and probably more than, direct competition between the two beverages. The coffee, tea, and cocoa trades have argued that the wartime experiences of the armed forces with their respective products would be a great boon to postwar consumption. Yet the soft-drink manufacturers were by no means left behind, and may well have established their position, through aggressive merchandising, more firmly than the older standard beverages.²⁸ In-

(and, to a certain extent, spirits) replaced wine in many parts of the world. Today, except in wine-producing countries, this beverage is still a luxury, used chiefly in connection with special rituals or entertainment.

²⁵ H. S. Kantor, *Price Control in the Coffee Industry* (U.S. Office of National Recovery Administration, Trade Practice Studies Section, Work Materials No. 55, March 1936), p. 12.

²⁶ Among the numerous coffee substitutes and adulterants are chicory, dandelion root, dried beet pulp, peas, beans, and practically all the important cereals, but especially barley. In several European countries roasted chick-peas or acorns are also used quite extensively.

²⁷ The amount of chicory used with coffee varies widely. One ounce added to each pound of coffee leaves a beverage closely resembling pure coffee, but sometimes, especially in Europe, a mixture of coffee and chicory is 40 percent or more of chicory. Roasted and powdered chicory root is ordinarily mixed with ground coffee when the latter is scarce or expensive in order to make it go farther. Chicory contains neither caffeine nor tannin, but has a bitter principle and a volatile oil. When roasted, it develops an aroma and a sugar content. Added to coffee, it gives body, color, and "bite" to the brew.

²⁸ The best-known cola beverage, "Coca-Cola," expanded its world coverage greatly after the war, especially in hot climates where refrigeration (something relatively new in many places) was a necessary feature of its merchandising. (See *Time*, May 15, 1950, pp. 28-32, for a lead story on the Coca-Cola "empire.") World consumption of this single branded beverage is estimated at 50 million bottles per day. Other United States "cola" and soft-drink manufacturers have also expanded their overseas operations, e.g., "Pepsi-Cola," Canada Dry Ginger Ale (and others),

creased popularity of one need not preclude the others, but because an individual chooses to consume only so much liquid, some competition among the various beverages is inevitable.

Coffee and tea relationships.—Because of the overwhelming preference for tea, per capita coffee consumption in the United Kingdom has long been at a very low level, only about three-quarters of a pound annually before the war. Most of the coffee then imported and consumed was good-quality mild, much of it from Empire producers, and London was the principal market in Europe for high-quality coffee. During World War II, coffee consumption in the United Kingdom increased substantially, and the gains were maintained in early post-war years. Apparent per capita consumption for 1945–49 averaged two pounds. Unlike tea, coffee was not rationed during or after the war, and prices were kept moderate.²⁹ Furthermore, the presence of thousands of Americans in the armed forces and of European refugees from coffee-consuming countries tended not only to lift the level of consumption, but encouraged the coffee-drinking habit among British tea drinkers.

Brazilian bulk coffees came to be used in large quantities in blends for the first time, an interesting development in the light of an earlier various orange-drink producers, and so on. In each case, the presence of American armed forces during the war was a potent influence in creating demand among local residents.

²⁹ A general indication of the extent to which coffee, tea, and cocoa prices rose during and after the war in the United Kingdom is provided by a tabulation of average declared values of imports, given in pence per pound:

Year	Coffee	Tea	Cocoa
1939	7.0	14.2	2.5
1940	6.6	15.3	3.6
1941	7.0	15.0	3.5
1942	8.1	16.0	3.5
1943	8.0	18.4	3.5
1944	8.4	19.5	4.0
1945	9.4	20.2	4.0
1946	10.6	21.3	5.0
1947	13.7	27.6	13.2
1948	12.3	32.2	21.7
1949	13.6	33.7	15.1
1950 (Jan.–Apr.)	19.2	35.9	20.5

The Commonwealth Economic Committee (*Plantation Crops*, 1950, p. xi) comments: "The ordinary market prices for plantation crops in recent years are of doubtful significance as the normal pre-war methods of marketing were usually replaced by Government purchases on bulk contract with control of the quantities purchased and the prices payable." Until late 1949, however, coffee was *relatively* cheaper than either tea or cocoa.

conviction within the British coffee trade that "taste has been formed, for generations, on the superior mild coffees, and it is unlikely that the Brazilian type, with its markedly different flavor, would be acceptable." This attitude, however, was a reflection of concern over competition that might be offered Empire producers if Brazils were used, and fears that the position of London as the European center for mild coffees might be prejudiced.³⁰

Another noteworthy and significant change from the longer viewpoint took place in Canada, partly in reflection of cultural, business, and political contacts with the United States. Although tea remains the national beverage of Canada, its position is not nearly as secure as before the war. Coffee has become a formidable rival, and this is recognized by tea interests.³¹ Per capita coffee and tea consumption were about the same before the war, but coffee consumption has increased to 6 pounds (1945-49) from 3.6, while per capita tea consumption has shown a small decline, from 3.5 to 3.2 pounds. In terms of cups, of course, tea is still far ahead; but the trend seems away from tea, partly because the proportion of the population of British origin is declining, and partly because tea is most popular among the older rather than the younger age groups.

Although the United Kingdom and the British Commonwealth tend to prefer tea to coffee, the strength of established habits and customs can be exaggerated. A comparison of the two beverages in the United Kingdom and in the United States over a long period of years indicates that the expansion in the consumption of one is not

³⁰ In the early 1930's, the Imperial Economic Committee issued a report on coffee, in which obstacles to increased coffee consumption in the United Kingdom were discussed. After correctly pointing out the cheapness of tea, the relatively high cost of milk, the loss of tradition in preparing coffee for the table, relatively wide retail price margins, and similar factors, the report concluded that prospects were not bright for increased consumption of coffee in the United Kingdom. The reasons for this conclusion are examined critically in Wickizer, *op. cit.*, pp. 74-79.

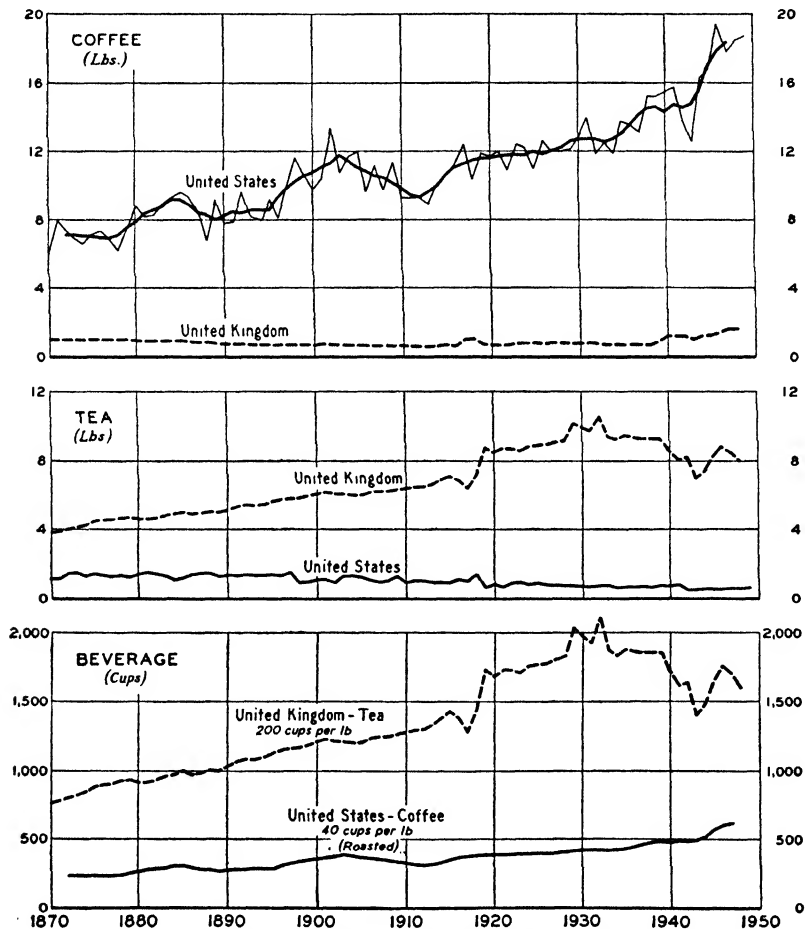
³¹ Although tea leads coffee in the home (in terms of cups) by 4 to 1, "it is a bad second to coffee at breakfast." The following breakdown is from a Canadian Facts Survey conducted in 1947:

	Breakfast percent	Noon meal percent	Evening meal percent
Drink tea	29.4	62.2	62.3
Drink coffee	57.1	12.1	15.3
Drink milk	8.2	18.8	17.1

"Outside the home, tea's position is by no means so firmly entrenched. In the public service field, for example, an average of only one cup of tea is consumed to every four cups of coffee; at the same time, competition from milk and soft drinks is becoming more and more aggressive. Restaurateurs are inclined to consider coffee quicker and easier to serve, and more profitable with its greater turnover." *Tea Times*, November 1948, pp. 6-7.

necessarily at the expense of the other. On a per capita basis, coffee consumption until recently has very gradually declined in the United Kingdom, and tea consumption has declined somewhat more in the United States (Chart 16). But in both countries per capita consumption of the preferred beverage has doubled since the 1870's.

CHART 16.—PER CAPITA CONSUMPTION OF COFFEE AND TEA IN THE UNITED KINGDOM AND THE UNITED STATES, 1870-1950*



* Data from official returns (usually statistical abstracts for each country) for various years. The smoothed curve for per capita coffee consumption in the United States is a 4-year moving average smoothed by a 2-year moving average. One pound of tea makes 180-200 cups of beverage and one pound of roasted coffee 35-40 cups. For convenience, the higher figures have been used, and 1.2 pounds of green coffee have been considered equivalent to 1.0 pound of roasted.

Even more striking is the contrast in terms of cups. Because one pound of tea makes four to five times as many cups of beverage as one pound of coffee, the curve for the United Kingdom rises much more sharply than that for the United States. The water intake carried by the two beverages is far greater per capita in Great Britain than in the United States.³² In terms of aggregate consumption, of course, both products have expanded in use in both countries along with population growth.

Although per capita tea consumption in the United Kingdom has declined with rationing, total consumption is not much under prewar. Per capita coffee consumption, however, increased two and one-half times from its low prewar base, and apparent cocoa consumption is believed to have increased 30 percent. Both developments reflected the tea shortage, but rationing continued so long that competing beverages undoubtedly became better established than before.

A substantial part of the wartime increase in coffee consumption in Great Britain is likely to be maintained unless coffee prices remain at the high levels of late 1949 and 1950. A postwar survey by the Coffee Buyers' Association, Ltd., when coffee prices were lower, suggested that 45 percent of households with annual incomes over £500 served coffee daily (86 percent sometimes), while 30 percent of those with incomes under £500 served coffee daily (77 percent sometimes).³³ Most use was in the midmorning and late evening. Soluble coffees accounted for a large part of the increase in consumption, but trade interests were, nevertheless, more confident of future prospects than they were before the war.³⁴

Soluble coffee, which greatly rose in acceptability during the war, is made by dehydrating a strong coffee brew. It becomes a beverage upon the addition of water to the crystals or powder. Soluble coffee

³² In both the United States and Canada coffee and tea tend to be consumed primarily with meals. In contrast, in the United Kingdom, Australia, New Zealand, and South Africa, there tends to be greater between-meal consumption and a fourth meal, or afternoon tea. The people of the British Isles drink more *cups* of tea per capita than the combined coffee and tea consumption (in terms of cups) of the United States and Canada. Yet America consumes more liquids because of between-meal consumption of water, cola drinks, and similar soft, bottled beverages.

³³ *Coffee*, February 1948, pp. 10-11.

³⁴ Many cheap substitutes and mixtures were still on the market in 1949, but the trade felt that these would disappear when tea and cocoa became more plentiful. Although the use of Brazilian coffees in blends increased notably, it was held that over-all results were better than prewar, owing to improvements in blending, roasting, and brewing. Prices and margins were controlled, yet the price of low but acceptable quality at 2s. 10d. compared favorably with prewar prices when margins were wide. Some 81 percent of the housewives interviewed in the survey cited above thought that they would not buy less coffee when tea rationing ended.

product is used in the same manner, but is not pure coffee. Some carbohydrate or other nearly tasteless material is added. In its special packaged rations the United States Army used nearly 50 million pounds of soluble coffee in the period 1942-45, and over five times as much soluble coffee product.³⁵

Future expansion in the consumption of soluble coffees seems to depend upon further improvement of the product. During the war the two makers of soluble coffee and soluble coffee product in the United States were not able to supply the Army's urgent needs. The aid of other manufacturers had to be enlisted and, as the industry mushroomed, many inferior products were placed on the market after 1945, when government restrictions on sale were removed. Early postwar plans of coffee growers to develop soluble coffee industries in Latin-American countries seem to have been abandoned.

So-called "instant" teas have thus far apparently made little impression on the consuming public. In the United States in 1948, Standard Brands introduced "Instant Tenderleaf" with limited distribution, and a Nestlé product, "Nestea," was also brought out, but they were reported as bearing little resemblance in taste to properly brewed tea.³⁶

Various tea substitutes or local "teas" are found in different parts of the world, but only two are of any importance. Yerba maté, already mentioned, is by far the more important and offers genuine competition to tea in four or five South American countries. The other, "Rooibosch tea,"³⁷ is consumed mostly by the African population of Cape Province because it is cheaper than real tea and has been more readily available.

Adequate information about other beverages consumed in the principal coffee- and tea-importing countries has been largely lacking since the war. Some of the alternative beverages available are undoubtedly competitive, but the circumstances of use and the relationships between them vary to such marked degree that, even before the war, the evidence was suggestive and not conclusive.³⁸

³⁵ The Army authorities considered their coffee research and development program "one of the most successful." It made a popular beverage available to men in the field, and solved various problems of space, weight, and shipping. U.S. War Dept., *Storage of Quartermaster Supplies*, pp. 8-11, 14.

³⁶ TIS, *International Bulletin*, January 1950.

³⁷ This beverage is derived from the needle-shaped leaves of a wild red bush (6 feet or so high) which has been cultivated only during the past 20-25 years. Manufacturing of the hand-picked leaves is by primitive methods, following processes roughly similar to those used for real tea. Usual service is to steep a strong brew for about half an hour and add it to a cup two-thirds full of boiling milk.

³⁸ For a discussion of prewar competition among beverages in the United States

Chocolate and cocoa.—Chocolate manufacturers in the United States tend to think of their competition in terms of soft drinks, bags of peanuts, ice cream, and even magazines, rather than in terms of the beverages coffee and tea. Ice cream may be the chief competitor of the popular chocolate candy bar, but certainly not the only one. Per capita consumption of candy and ice cream in the United States is roughly the same—about five and one-half ounces per week. During postwar years of rationing and “austerity” in the United Kingdom, leaders of the industry considered that the chief competition to chocolate and confectionery was provided by tobacco, cigarettes, drinks, and film.³⁹

In discussing the importance of cocoa to the economy of the Gold Coast, the United Africa Company made this interesting observation on demand factors:

It has even been argued that the welfare of the Gold Coast African depends, in the long run, on two apparently disconnected factors: first, the price of sugar; and second, the caprice of American children. The argument is that the price of sugar determines the quantity of boiled sweets or candy that can be bought for a given amount in the U.S.A.; that children will move from chocolate to candy, and vice versa, according as one appears a better bargain than the other; and that as the U.S.A. market is the largest, and therefore determines the world price of cocoa, the requirements of the children in the U.S.A. in effect constitute the marginal demand for cocoa in the world market. . . .⁴⁰

The article goes on to say that this argument is “perhaps a little far fetched, but it at least illustrates on what uncertain grounds the prosperity of the Gold Coast African is based.”

Confections have a caloric value and acceptability that is unquestioned, and often displace other foods, especially under circumstances of stress when heavier foods are unappealing or inconvenient. Candies were included in almost every ration used by military personnel during the war and in the various food parcels sent to hungry civilians in the early postwar years. Of the candy flavors, chocolate was generally the most popular, and the chocolate bar came to be an article in great demand, both in military and civilian circles throughout the world.

and seven European countries, see Wickizer, *op. cit.*, pp. 70-73. A smattering of information on postwar consumption in Europe is given in United Nations, *Economic Survey of Europe in 1949*, p. 34.

³⁹ See, for example, letter of L. J. Cadbury (of Cadbury Brothers, Ltd.) in the *Economist*, May 24, 1947, pp. 796-97.

⁴⁰ *Statistical and Economic Review*, September 1948, p. 26.

The prewar commercial chocolate bar—popular in the United States, Great Britain, and parts of Europe—melted into a sticky mass at temperatures above about 85° F., and was therefore unusable in packaged rations. Although capacity for producing the civilian product “seemed limitless,” the problem of introducing chocolate bars into packaged rations “appeared unsurmountable.”⁴¹ Extensive experimentation, however, led to the development of the Army sweet chocolate bar, “considered one of the most outstanding confection developments of the war,” which would not melt regardless of storage and temperature conditions. Thereafter it was possible to have an acceptable chocolate bar in tropical areas of the world as well as in temperate zones.

The cocoa beverage powder that was developed by the United States Army was also in many ways superior to the civilian product. It had greater stability, was soluble in cold as well as hot water, and had a consistency not unlike that of a beverage made from whole milk powder. It was included in almost all combat rations and retained its acceptability, like coffee and orange juice, despite regular use. “Without any question cocoa has proved to be one of the most popular ration components. It is not only nutritious, but it tastes good.”⁴² Unlike chocolate, cocoa was not rationed in Great Britain, and cocoa beverages gained favor on the home front during and after the war.

COMMON OBSTACLES: TAXES AND DUTIES

High prices of coffee, tea, or cocoa and limited ability to buy can readily make a luxury of an item which, under other circumstances, would be regarded as a standard part of the dietary. This is especially true in Europe and countries where taxes and duties were high before the war and remain so today.⁴³ For several years of the postwar period, however, policies of planned imports and state trading were apparently more important factors in consumption than various taxes and rates of duty. As rigid controls were gradually relaxed, the many

⁴¹ For an account of the development work done by the United States Army on confections, see U.S. War Dept., *Storage of Quartermaster Supplies*, pp. 19–43.

⁴² *Ibid.*, p. 16.

⁴³ When they are as high as, for example, in Italy and Spain, it is apparent that governmental policy regards coffee and tea as luxuries and nonessentials. Despite unimportance in the diet of some peoples, lower rates might permit the coffee- or tea-drinking habit to develop and produce more revenue. Unless this would actually limit consumption of locally produced beverages, a strong case could be made for low import duties and taxes to the benefit of both importing and producing countries. Despite resistance of wine producers, soft drinks of the cola type have made progress in the major wine-producing countries during postwar years.

charges imposed upon importation or consumption of coffee, tea, and cocoa were seen to be continuing obstacles to the expansion of their consumption. Meanwhile, encouragement was given to the use of numerous substitutes and adulterants.

The fiscal needs of governments have long made the "enjoyment goods"⁴⁴ of international importance logical targets for taxation. Only tobacco has carried a heavier burden than coffee and tea. All three products aroused strenuous opposition upon their early introduction in Europe, but that to tea and coffee has now largely disappeared.

The Inter-American Coffee Board considered the "terms and conditions under which coffee secures access to the importing country" as perhaps the most important marketing problem of the industry.

Tariffs, empire or colonial preference arrangements, import quota restrictions, foreign exchange controls, and internal taxes on coffee consumption constitute some of the major impediments which tend to reduce the volume and alter the direction of coffee movements in international trade. . . .⁴⁵

Government restrictions on imports and consumption are a major concern of producing interests, but are something over which they have little control. In the postwar years, as before, there was apparent justification for some of the restrictions in special cases of a country's need for revenue or of conserving foreign exchange, but little, at least on economic grounds, for colonial preferences.

The long period during which Brazil followed a protectionist policy for coffee also encouraged the European colonial powers to extend various forms of assistance to colonial planters. These colonial preferences and privileges remain to this day, although the original circumstances that inspired them have not been present for several decades. As the Coffee Board report recognized, the "political considerations involved in such arrangements are hard to overcome." Similarly, the bulk-purchasing schemes of the British government, which continued after the war, introduced complications in marketing for noncolonial producers.

Although primarily an agency of Latin-American coffee-producing interests, the Board's report recognized that government restric-

⁴⁴ Coffee, tea, and cocoa are sometimes classed as "enjoyment goods," along with wine and tobacco. These are the only five of world importance among the many so-called enjoyment goods. They are all prized for some combination of flavor, aroma, and stimulating properties.

⁴⁵ *Coffee Board Study*, p. 32. The Appendix to this report (pp. 42-44) gives a tabulation of duties, taxes, and restrictions applied in the principal importing countries in 1948, with comparisons for 1929 and 1936.

tions in the *producing* countries also impeded the movement of coffee. Sometimes taxes imposed on coffee in producing countries have been substantial, although much less attention has been directed toward them than to taxes and duties in importing countries.⁴⁶ During the war, growers in most of the producing countries were taxed to cover the expenses of storage and disposition of temporarily unmarketable coffee. Wherever governmental or semigovernmental marketing institutions are found, producers are taxed on exports in order to defray the expenses of the organization involved.

During the interwar period, import duties on raw coffee were raised appreciably in practically all European countries; in fact, the duties in some countries were as high per pound as the average retail price of a fair grade of coffee in the United States. Holland retained coffee on the free list until early 1940, but otherwise the United States was the only important market where coffee entries were without duty. Where before World War I import duties were nominal or reached a 10-to-15-cent-per-pound rate in countries essentially non-coffee drinking, just before World War II they ranged between approximately 3 cents (United Kingdom) and 38 cents a pound (Italy). Even in the most important Continental markets, rates were about 13 cents (France) and 29 cents (Germany). At this time retail coffee prices were around 30 cents in the high per capita Scandinavian countries with moderate (5-to-6-cent) duties, and about 23 cents a pound in the United States.

Taxes and duties on coffee imported into Europe in 1949 ranged between a nominal "statistic tax" (no duty) in the Netherlands to over 40 percent of the selling price in Germany.⁴⁷ With the doubling of green-coffee prices during 1949-50, the retail roasted price of cof-

⁴⁶ Until the export tax on coffee was greatly reduced in Brazil in 1937, every pound of coffee exported from Santos bore a charge of 3.74 cents for various Brazilian taxes—and that was when coffee was worth only a fraction of its value of recent years.

⁴⁷ Without attempting to convert currencies or cite details, the following tabulation is extracted from a compilation made by Jacques Louis-Delamare and quoted in *Coffee Intelligence*, Feb. 28, 1950 (p. 7). The figures represent estimates of the *percentage* that import duties and interior taxes bore to selling prices in each country, apparently calculated before the autumn 1949 rise in coffee prices.

Belgium	9.5	Great Britain (Colonial	
Denmark	11.0	coffee)	1.5
Finland	33 to 60	Holland	0
France	20	Italy	23 to 35
Germany	33 to 42	Portugal	8.5
Great Britain (Foreign		Sweden	13.8
coffee)	4.4	Switzerland	10 to 14

fee became prohibitive for many consumers in Europe. A reduction in coffee imports was anticipated as the use of substitutes and adulterants increased.

In nearly all countries duties are imposed on tea for revenue purposes, and in those countries with dependencies producing tea, preferential treatment is generally granted colonial producers.⁴⁸ During and following the great depression of the early 1930's, there was a marked tendency for duties and taxes to increase, with a consequent retarding effect upon consumption. Just before the onset of war in Europe, general and preferential duties ranged between 1*d.* per pound in Argentina and 48*d.* (or 4*s.*) in Italy.⁴⁹ Only the United States admitted all tea free of duty, although Eire gave British tea a preferential free rate.

Tea is also generally taxed at its source of production, or as it is exported from producing countries, thus adding to its price even before it arrives at importing markets. The following approximate export duties and other levies (cesses) were in effect in mid-1950, in most cases greatly increased over 1941.⁵⁰

Country	Pence per pound	
	1941	1949
India .....	.26 ^a	4.87
Pakistan .....	...	6.82
Ceylon .....	.46	9.80
Indonesia (N.E.I.) .....	.52 + $\frac{1}{4}\%$ <i>ad val.</i>	3.01
Nyasaland .....	.10	2.16
Tanganyika .....	...	.120
Kenya .....	.096	....
Uganda .....	.09	.096

^a Except Travancore State where the figure was .53*d.*

⁴⁸ British tea taxes date back practically to the introduction of tea in England. Import duties have varied with treasury needs. During the interwar decades they ranged between 4*d.* and 8*d.* a pound on foreign and 2*d.* to 6*d.* on Empire teas, except for the period between 1929 and 1932, when tea was admitted duty free for the first time in 269 years. Empire-grown teas generally constituted approximately four-fifths of imports. The preferential treatment accorded such teas provided a price advantage ranging from $\frac{2}{3}$ *d.* to 2*d.* per pound.

The United States placed tea on the free list in the 1870's. Among the major importers, Russia was the only country at that time attempting to grow tea. Domestic production had begun in Transcaucasia in 1847, but notable expansion of tea cultivation in the U.S.S.R. did not occur until after World War I, especially in the 1930's. A protective tariff followed the fiscal tariffs imposed in pre-World War I days when Russia was one of the largest importing countries.

⁴⁹ For details, see tabulation in Wickizer, *Tea Under International Regulation*, p. 48. For a tabulation of import duties, other taxes, subsidies, status of rationing, current retail prices, etc., in the principal tea-consuming countries (as of fall of 1950), see TIS, *International Bulletin*, September 1950).

⁵⁰ Data for 1941 from ITC; for 1950 from TIS, *International Bulletin*, July 1950.

In British East African territories, an additional excise duty equivalent to 10s. per 100 pounds was levied on all tea produced for local consumption, but not on exported tea.

Levies on tea for export from producing countries are usually small in comparison with the duties and taxes imposed in consuming countries. Additions to the price of tea that are made in the consuming country in the form of taxes are likely to have more immediate effect upon retail prices and consumption than changes in wholesale prices. Not only is there a noticeable tendency for changes in retail prices to lag, but adjustments tend to be made in the composition of blends in order to keep blend costs, and hence resale prices, as stable as possible.

The remarkable stability in the retail prices of tea reflects the policies pursued by the large packers and distributors. In Great Britain it seems generally considered unwise to alter prices by less than 4*d.* at a time so that the quarter-pound package may always be sold at an "even price." Margins tend to be narrow when wholesale prices and/or the rate of duty are high, and wide when these are low. But also better quality and more expensive teas are used when wholesale prices are low than when they are high, and competition seems to be more on a quality than a price basis. The large distributors apparently take the view that very low prices (and wide margins), as in the early 1930's, never last for long and, in any event, are necessary to compensate for periods of narrower margins.

During the long period of tea rationing in Great Britain with bulk buying, fixed prices, and margins, it was of course not possible for the large packers and distributors of proprietary blends to operate as they normally would without controls. Although individual identity of blends was maintained, there was much less flexibility in quality and price adjustments.

PROBLEMS IN PROMOTING CONSUMPTION

Potential demand for coffee, tea, and cocoa from among millions of consumers who have never had an opportunity to acquire a taste for them is undoubtedly enormous. Demand creation within such groups, however, is definitely a long-term undertaking and must be approached in a quite different manner from methods which recommend themselves in countries where coffee or tea drinking, for example, is already established. The International Tea Market Expansion Board has recognized this in its program of promotion in areas where the use of tea is practically unknown.

Problems of promoting the consumption of coffee, tea, and cocoa remain essentially as before the war, complicated in the postwar period, however, by consumer resistance to high prices and by a certain indifference to quality on the part of producers. While growers have considerable influence over quality, they have little influence over such factors in marketing as consumer purchasing power and governmental policies. Nevertheless, demand must be created or stimulated before any of the other considerations in marketing become significant.

Promotional efforts of producers and merchants designed to sell more coffee or tea (or certain kinds) have had a long-term cumulative effect upon demand. Such efforts were largely discontinued during the war. Shortages and difficulties of supply made *availability* more important than anything else. Distributors of branded blends endeavored to keep their names before the consuming public, but were in no position to expand their markets.

Demand creation (coffee).—Even before the war, when conditions favored expansion of coffee consumption in such an important market as the United States, retarding and restricting factors were present. Conflicting counsel to consumers, for example, undoubtedly slowed market expansion. Varied interests within the industry had their special causes to plead, leaving prospective buyers confused. Consumer education was, and remains, faulty. Countless homes and public eating places continue to brew a concoction that has small right to be called coffee. The industry is well aware of this, and has created special organizations to formulate standards and disseminate information on correct brewing methods.⁵¹

Divergent interests within the industry have given contradictory advice on such matters as freshness, grinds, equipment, and brewing methods. This tends to undermine the confidence of consumers. Those responsible for industry efforts to promote coffee consumption constantly stress the need for a more united front within the industry. Yet despite the negative approach of some elements within the industry, per capita use in the United States has increased substantially. Some argue that all of the confusion, competitive claims and

⁵¹ The National Coffee Association has been most active in this respect. The NCA is the leading coffee trade organization in the United States, including brokers, importers, and roasters in its membership. It sometimes joins with the Pan-American Coffee Bureau in coffee promotion campaigns. The Bureau, established in 1937, is strictly a Latin-American producers' agency for promoting consumption and advising its members on current market developments. As of 1950, it was supported by Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Dominican Republic, and Venezuela.

counterclaims, is beneficial in that it attracts attention to coffee and wins new consumers.⁵²

During World War II there was an unquestioned stimulus to coffee consumption in the United States provided by placing millions of men under arms and many more, both men and women, in industries at home. Thousands formed the coffee-drinking habit that was to be carried over into civilian life and normal pursuits. Meanwhile the composition of popular blends had necessarily undergone substantial change. No one could be sure that market offerings in the postwar period would capitalize upon the opportunities present. The desirability of joint seller-buyer efforts to re-establish conditions within the coffee industry favorable to a growth in coffee consumption was obvious.

After considerable dickering—for United States coffee interests felt that producers should share in the expenses of promoting consumption—an agreement was reached in April 1949 whereby a \$2 million budget was approved for coffee promotion. Producer interests were to contribute 10 cents per (60 kg.) bag of green coffee imported into the United States, and a goal was set of 30 million bags annual consumption to be achieved “soon.” (In 1948 per capita consump-

⁵² Broad educational work among consumers is nevertheless mandatory. There are several ways of making a good cup of coffee; insistence on the *one* best method or use of the *one* best brand may have a restricting influence. Some roasters maintain that the grind should conform with the type of equipment used; others contend that a single “all-purpose” grind is best. (Authorities on coffee making seem to agree that too coarse a grind does not permit rapid and complete extraction of flavor and that a grind so fine that all of the cells are broken—“scorching” from rollers or grinders and early staling—is undesirable in that both flavor and aroma are adversely affected.)

The importance of freshness in coffee is generally recognized, yet merchants make attractive concessions on quantity purchases which often result in poor satisfaction by the time the last of the coffee is used. The use of premiums, trick containers, and so on, takes the emphasis off the commodity itself and benefits only the brand concerned. Special coffee-making equipment, however promoted, is no substitute for good-quality fresh coffee, carefully prepared with an adequate amount of coffee and fresh water. Clean making utensils, fully boiling water, and various other considerations are forgotten when a given brand of coffee is advertised as so good that it is impossible to make a bad cup of coffee from it. “Fear copy” of rival beverages (often sold by large companies with a much greater financial stake in their own coffee brand) about “coffee nerves” can hardly be conducive to expanding coffee consumption.

Considerations involved in promoting coffee consumption are discussed in more detail in the author’s earlier work. (Wickizer, *World Coffee Economy*, pp. 79–86.) Although written in 1943, this discussion seems about as valid today as then. Improvements have been made in some directions over the intervening years, but in other respects conditions have grown worse, largely because of the temptations to debase that inevitably arise during periods of high coffee prices.

tion in the United States was calculated at 18.6 pounds—more than 21 million bags.) Considering the unexpected population growth, such a goal did not seem unreasonable. In per capita terms, however, the change might not be spectacular. Record coffee prices of 1949–50 did not, as already pointed out, make the outlook for promotional efforts especially promising.

Increasing the demand for coffee in European countries involves many of the same considerations as in the United States; yet there are important differences. These differences are not only regional and economic but psychological as well.⁵³ In the modern history of coffee, far too little attention appears to have been given to consumption potentialities, and too much has been given to strictly short-term producer efforts at production control and market manipulation.

Tea propaganda.—Tea producers many years ago recognized the need for promotional work designed to spread the tea-drinking habit and increase consumption in Western markets. Early efforts of producers with what is now called trade “propaganda” date back to the 1870’s and 1880’s. Initially, funds were raised on a voluntary basis in Ceylon and India; later export duties and taxes were imposed making contributions to a propaganda fund obligatory. Ceylon imposed its first export duty on tea in 1892, and the India Cess Act followed in 1903.⁵⁴ After World War I the Dutch also began to promote their teas more vigorously.

With this background of experience, it was to be expected that the parties to the International Tea Agreement would recognize the necessity for a continuation of propaganda activities. The International Tea Market Expansion Board was created in 1935 to co-ordinate the promotional work of the black-tea countries. At the outbreak

⁵³ In the United States, taste preferences are far more uniform than they are from one European country to another. Ideas as to what constitutes a good cup of coffee vary in a more marked fashion in Europe. Customs in use differ more significantly. Milk instead of cream is far more commonly served, the brew tends to be stronger originally and is then diluted, and adulterants are a factor of appreciable importance in consumption. In most countries the beverage is prepared by infusion, but in the East and some other places it is prepared in the form of decoction (“Turkish coffee”). Sugar is used in some places in about the same proportion as the beverage, as is the popular Brazilian custom. Competition with other beverages, especially wines and beers, is greater than in the United States, partly because of different habits of eating and types of meals, and partly because of the generally higher cost of coffee and accessories in many European countries. Making equipment probably has more influence on consumption than in the United States, and home grinding and roasting are more common.

⁵⁴ Later export taxes or “cesses” were imposed for purposes other than propaganda, such as for tea research and the administrative expenses of regulation.

of World War II, it was spending over £625,000 annually.⁵⁵ After the loss of European markets occasioned by the war, and the restrictions on supplies elsewhere, the activities of the Board were necessarily greatly curtailed.

The work of the International Tea Market Expansion Board has not been confined to propaganda in Western markets. Campaigns have also been carried on in India, Ceylon, and Indonesia. Including the three producing countries, programs for maintaining and increasing the consumption of tea were in effect in a dozen countries at the outbreak of the war. After the war, activities of the Board were again stepped up, the most notable campaign being a bid for the United States market, started in 1950 and backed by all major factors in the industry. It was estimated that this campaign would cost around \$5 million annually, \$1.6 million of which would be supplied by the Tea Council and the balance by tea packers.

The methods, form of appeal, and immediate objectives of propaganda on behalf of tea have varied with the racial, economic, and psychological circumstances within the different countries. In markets already committed to the tea-drinking habit, efforts are directed mainly toward maintaining the existing level of consumption against the inroads of alternative beverages. In addition to conventional advertising techniques, emphasis is placed upon educational work among distributors, especially retailers. Although relations with the trade receive much attention, efforts are also made to improve and encourage tea serving in restaurants, hotels, business offices, and institutions. In places where tea drinking is something relatively or entirely new, programs are designed to introduce the beverage to large numbers of people by sampling, demonstrations, and exhibits.⁵⁶

⁵⁵ Before this Board was organized, the India Tea Cess Committee was spending £50,000 annually on advertising in America, with apparently little to show for it. By contrast, considerable success was reported as the result of the £45,000 appropriation for advertising in India.

⁵⁶ India provides a good example of a mass market where tea is still relatively little used. The methods employed by the Indian Tea Market Expansion Board before the war are typical of those used by similar organizations among native populations in other producing countries, South Africa and Egypt. In India, efforts to develop the domestic market were first directed toward the establishment of many tea shops at railway stations, steamship terminals, industrial centers, and other places where large numbers congregated. Then direct appeals were made to the village people, *the majority of whom had never tasted tea*. This was done by means of lectures, demonstrations, traveling cinema displays, coupled with the free distribution of cups of well-made tea. The free sample was followed by the sale of a small quantity of leaf, the "pice packet," which contains about one-third ounce, or enough for five cups, at the price of one *pice*, the coin the Indian masses spend more or less readily. The

In the modern tea industry the facility with which producers are able to grow, manufacture, and sell their product measures their ability to compete in the international tea trade. Although China provided most of the world's tea for several centuries, gradually she lost her leading position, because European-managed plantations and factories were able to turn out a product better in quality and one conforming to shifting consumer preferences. The changes in consumer tastes, however, occurred in large part as the result of many years of promotional work on the part of tea producers in the black-tea countries.

Changes will continue to occur in tea promotion and consumption, but progress will be made only if standards are maintained and constantly improved.⁵⁷ Advertising alone will not make a contented tea drinker. The tea itself and the type of service must be right. There are several ways to make, serve, and flavor tea, according to taste. The International Tea Market Expansion Board does not insist on one "correct" procedure, but is happy to have tea used as a beverage under a great variety of circumstances and conditions. But an industry so well established and steeped in tradition always has individual members who are unwilling to tolerate any departure from what they consider desirable and correct.

Although the mass markets provided by the principal producing countries may in the long run absorb more tea than the Western markets, producers meanwhile look to non-British countries like the United States where an enormous potential market remains relatively untapped. Yet, until fairly recently, iced tea and tea-bag service were rather frowned upon by the trade. They were departures somewhat too radical. Iced tea has become accepted as an American custom, but the individual tea-bag type of service is still considered "barbarous" by some.

Criticism of the tea bag is many times justified, but it is now recognized as firmly established in the United States. About half the

small packets, purchased in towns, found their way into village homes and thus introduced tea to many who had little if any experience with tea drinking. Then local shopkeepers were approached with the objective of persuading them to stock tea. Finally, press publicity of more conventional type was used, especially to reach the urban population.

⁵⁷ In the United States all tea is subject to official examination by a board which each year fixes the standards for imports. Since 1897, when the Tea Importation Act was passed requiring inspection, all tea has gone through bonded warehouses and has then been given an examination by the Food and Drug Administration before being released for distribution. The standards set are so high that poorer grades of tea are rejected and never reach the American consumer.

tea sold is packed for individual service, and tea bags seem to be gaining popularity in Canada. Perhaps the principal reason for the popularity of the tea bag in North America is that it helps to simplify the service. Even so, institutional tea service in the United States is more complicated, involves more labor, dishes, dish breakage, and "extras" (such as lemon), than coffee. It is not surprising, therefore, that most public eating places cater to coffee drinkers and tend to discourage tea drinking by their pricing policies. The British, on the other hand, have developed numerous short cuts in service, such as more or less automatic brewing and vending equipment, that are acceptable to British consumers.

In the United States abuse of proper tea service comes from attempting to secure too many cups of tea from one small bag, oftentimes dipped lightly in water of a temperature under boiling (so-called "dry service," i.e., a tea bag on a saucer plus a pot of hot or warm, but not boiling, water).⁵⁸ If used properly, and if the bag contains enough tea to make a good brew, there should be no objection to this type of service. At least those charged with increasing world consumption of tea now accept this view.

⁵⁸ American users of the tea-bag type of service are reported as trying to secure around 300 or more cups to the pound of dry tea instead of the 200 intended. In Canada the "dry service" custom has not developed, and individual bags usually contain more tea (120 to the pound), making a stronger and more satisfactory brew for Canadian tastes.

POSTWAR PROBLEMS OF PRODUCTION

At the same time that postwar shortages and high prices were creating a new interest in the factors of greatest importance in influencing the volume of coffee, tea, and cocoa consumption, attention was also being turned to problems of production that had, or threatened to, become serious. The disease problem in the cocoa industry was recognized at once, but it was several years after the end of the war before high costs of production really began to worry a good many coffee and tea growers.

Earlier, there was considerable speculation about the effects on the postwar outlook of surplus supplies expected to accumulate during the war, especially coffee stocks. Possibly from long habits of thinking, and experiences during the interwar period, producing interests were still primarily concerned with problems of regularizing production, i.e., keeping output in a comfortable and profitable relationship with consumption. In a relatively short time, however, this recurring problem became temporarily unimportant. General shortages meant high prices and profits for producers, at least while demand continued strong.

In time the danger of being priced out of the market became apparent to many producers. Political changes following the war resulted in imposing some new conditions of production, in greater or lesser degree, on producers of all three commodities. These changes affected labor and labor costs more than anything else. They seemed destined to be permanent rather than temporary factors in the production cost structure. But there were many other reasons for high costs. Altogether, the pressures became sufficiently great to inspire efforts toward improvements in production techniques, some of which seemed long overdue.

This chapter attempts to focus on selected production problems of the coffee, tea, and cocoa industries, with special reference to those which have come to the fore in postwar years. It is not intended to be comprehensive, but is designed to supplement the discussion in the chapters of Parts I-III. Taken as a group, these selected problems should provide some insight into the changing pattern of tropical crop production.

REGULARIZATION OF PRODUCTION

From the grower's viewpoint "regularization" of production is an appropriate way to express the idea that surpluses, accompanied by low prices and meager profits, should be avoided. Currently, shortages rather than surpluses of coffee, tea, and cocoa characterize the scene, and regularization—one of the oldest and most persistent problems encountered by producers of tree crops—is not regarded as of much importance. But the problem of adjusting output to consumption requirements remains. In the past overproduction has periodically created a "crisis," especially for coffee and tea growers. Artificial controls have been resorted to, only to increase the productive capacity of the industry and to create new problems.

Short supplies and high prices and profits stimulate production and new planting with the ultimate result that an industry must face the serious problems of readjustment arising from excessive zeal during the boom period. Agreements among producers to restrict production or exports in order to raise prices have always been effected when supplies were larger than the world's markets would absorb, prices were unremunerative, and hardships of greater or lesser degree were inflicted upon that part of the industry concerned with growing. To this day the only form of "regularization" of production recognized is the one-sided problem of dealing with surpluses when they arise.

After prolonged negotiations in Havana during the winter of 1947-48, the text of a charter for an International Trade Organization (ITO) was presented to the world. Since then the pros and cons of the Charter have been debated at length, and literature on the subject has become voluminous. The elaborate text (106 articles, covering 111 pages)¹ was confirmed by the delegates to the conference, but ratification awaited approval by the United States Congress. Meanwhile, interest for present purposes is confined to the Charter's proposals for coping with problems arising from the instability in production of important primary commodities.

Since some primary commodities are highly susceptible to production and price instability, it is now generally conceded that under certain circumstances temporary use of intergovernmental controls is justified. Chapter VI² of the Charter "is designed, in conjunction

¹ And containing, according to some critics, 1,000 "escape" clauses.

² This chapter specifies the circumstances governing the use of intergovernmental commodity agreements and sets forth the criteria and procedures to which member nations will adhere in establishing and operating them. Problems of primary com-

with Chapter V, to assure that agreements of this character shall not unreasonably restrict production or trade or unreasonably disregard the interests of consumers." They are permissible "only where large surpluses persistently appear or where there are large numbers of unemployed workers in the industry who cannot readily be absorbed elsewhere."³

Agreements are authorized only under the circumstances set forth in Article 59. These include the presence or prospect of a "burdensome" surplus of a primary commodity that would cause hardship to producers (especially small producers accounting for a substantial portion of total output), and present or prospective widespread unemployment or underemployment caused by industry troubles. In any case, an agreement can be justified only if "normal" market forces, government intervention, or a "substantial" reduction in price does not "readily" lead to a "significant" correction of the maladjustment.

Consumer representation and objectives of expanding production are the principal features that represent a change in viewpoint from prewar models. During the interwar period some producers' agreements had been subject to flagrant abuse, consumers were exploited, and governments gradually began to change their attitude toward such schemes.

Price raising, or price supporting in the interests of producers, was the central objective of most of these prewar control schemes. Experience seems to indicate that in most cases they could not be made to function successfully, except perhaps to relieve a temporary condition in the industry concerned. During the war and early postwar years, official and unofficial thought was crystallized on the subject. The chapter in the ITO Charter on intergovernmental commodity agreements reflects this thinking. In addition to the safeguards provided consumers (equal voice with producers in the formulation and administration of any agreement), it was proposed that

modities are recognized as being of a special nature. Solutions to such problems are to be found in systematic and comprehensive studies conducted with "adequate" representation of both producing and consuming interests. Agreements designed to regulate prices or restrict production or trade must be approved by a commodity conference and be administered by a commodity council—all with the understanding that they are "fair" to consumers and provide a "reasonable" return to producers. Support is given to the principle of bringing all buyers and sellers concerned together on equal terms. If advantageous to consumers and producers, agreements should be designed to expand rather than restrict output.

³ U.S. Tariff Commission, *Report on the Havana Charter for an International Trade Organization* (May 1949), p. 15.

in future agreements provision be made to permit production to expand in the more efficient producing areas.

Altogether, the rules and regulations proposed seem well designed to limit the use of intergovernmental commodity agreements. The one fact that "large" surpluses must exist or "persistently appear" makes the subject of international agreements for coffee, tea, and cocoa of more or less academic interest at the moment. But there was nothing unreal about the problems of oversupply in the 1930's when many controls were instituted, and it seems likely that within a few years the same problems will reappear for one or more of the commodities here considered.

As the ITO was being formulated one authority summarized the issues and problems involved with international commodity agreements (ICAs) as follows:

Prewar experience with ICAs . . . furnishes more warnings than guidance. . . . The evolution of old and new ICAs can proceed but slowly . . . Little can therefore be expected of ICAs in the war-peace transition period . . . the commodity-control agreement is often discussed as the ICA "par excellence" and advocated for wide application . . . The faith of its advocates, that its past evils and weaknesses can be overcome and persistent problems really met, is ill-founded. . . . A network of such ICAs would be a menace to world progress. . . . International commodity agreements, in short, are not perfected institutions ready to be freely used in the near future . . . the prewar models are manifestly obsolete and few of the new designs are yet ready for operating tests.⁴

In the course of a several years' debate in and out of official circles, the enthusiasts for more or less universal application of such controls lost ground, and the difficulties and limitations of commodity control schemes came to be generally recognized.

Yet, there were signs in mid-1949 that British official opinion was toying with the possibility of drawing the United States into a series of commodity agreements, the main purpose of which would be to offer the typical colonial products of the sterling area an assured market in the United States, both in terms of quantities and prices.⁵ This represented a change of official attitude. "Now, because of the dollar crisis, the Government seems to have concluded that Britain's interests have changed from those of a consuming country interested in cheap supplies to those of a primary producer concerned with high

⁴ J. S. Davis, *International Commodity Agreements: Hope, Illusion, or Menace?* (the Committee on International Economic Policy in co-operation with the Carnegie Endowment for International Peace, 1947), pp. 5-7.

⁵ *Economist*, July 30, 1949, p. 254.

prices and a stable demand." The *Economist* viewed the prospects skeptically: "this seems a gamble, which might bring in its train serious economic difficulties in the years to come."⁶

Coffee.—Because annual yield variations are normally much greater for coffee than for either tea or cocoa, the problem of adjusting supplies to market requirements appeared early in the leading producing country. Brazil's long experience with valorization and coffee "defense" schemes amply demonstrated their weaknesses. The prolonged period of embarrassing surpluses during the 1930's was the final outcome of many attempts to manipulate the market without at the same time being able to curb new planting.

Despite earlier Brazilian efforts to conclude some form of a pact with rival producing countries which had become the beneficiaries of the controls imposed in that country, the Inter-American Coffee Agreement was the first successfully negotiated international arrangement. Yet it was not sufficiently comprehensive to serve as a model for agreements of the type visualized in some government circles for postwar use.⁷

Interest in an international coffee agreement began to wane shortly after the end of the war. Former European markets began to open up to Latin-American producers, the annoying price ceilings in the United States were removed, crops were smaller, and the threat of troublesome surpluses disappeared. With these developments the principal justification for United States participation in the Inter-American Coffee Agreement also disappeared. Termination of the Agreement was welcomed by the United States and not opposed by the producing countries.

The Coffee Board concluded that a "crisis" no longer existed and that the outlook for the industry was "very encouraging." It recognized that problems remained, but felt that they were not pressing and were mainly of a long-term nature. Many could be solved better by national than by international action, and those within the scope of international action were being, or would be, considered by other existing or prospective organizations. The Board then appraised the

⁶ *Economist*, July 30, 1949, p. 256.

⁷ Many of the problems and difficulties involved in international regulation of the world coffee industry have been considered at length by the author in an earlier study. He did not regard the Inter-American Coffee Agreement (or a modification of it) as offering much promise as a means for creating greater price stability in world markets over a period of years or of stabilizing growers' returns, but did see merit in and hope for limited-purpose agreements. See discussion in Wickizer, *World Coffee Economy*, esp. pp. 220-31.

adequacy of such organizations in coping with what it considered the main problems of the industry.⁸

As a final reason for liquidating the wartime marketing arrangement, the Board pointed out that it would not be permitted under the provisions of the proposed ITO Charter. Any agreement to regulate coffee production and consumption would be outlawed unless it could be demonstrated

that a burdensome coffee surplus threatens or widespread unemployment is developing in the industry and that operation of normal marketing forces cannot correct these situations in time to prevent hardship to producers and workers. Since the world coffee industry is enjoying remunerative conditions, it is evident that a regulatory international coffee agreement would not be permitted at the present time. . . .⁹

Barring war or a severe depression it seems likely that international controls for the coffee industry will be a dormant issue for some years ahead.

Tea.—Tea is the only one of the three commodities with a prewar record of success under controls and with a near-term prospect of surplus production. Operation of the Tea Exports Regulation Scheme during the 1930's demonstrated the feasibility of international control more convincingly than with most other commodities that have been subject to regulation. The commercial tea industry enjoyed greater stability than before regulation, and tea consumers were not significantly harmed.

Conditions inherent in the commodity and in the organization of the industry facilitated control, but the comparatively enlightened policies followed by the International Tea Committee were largely responsible for the relatively favorable business, economic, and social results secured under the Agreement.¹⁰ The restraint shown by the Committee was the easier because the principal producers and consumers of tea were British.

The maladjustment of the early 1930's between productive capacity and world absorption of tea was largely corrected at the start of World War II. Wartime developments and slow postwar adjust-

⁸ *Coffee Board Study*, pp. 36-41. The FAO and the proposed ITO appeared to offer "immediate possibilities for coping with the principal problems of the industry."

⁹ *Ibid.*, p. 41.

¹⁰ A full discussion of the adaptability of tea to control, the policies of the control group and the many reasons for moderation, and similar matters will be found in the author's earlier appraisal, *Tea Under International Regulation*, esp. pp. 106-49. For those interested, attention is also called to a *Supplementary Comment* on this study, issued in 1945, wherein the author took cognizance of the exhaustive review given it by the ITC.

ments gave the industry a decade with no problem of surpluses, yet in recent years the prospect of a return to earlier conditions has been sufficiently strong to warrant keeping the machinery of control intact. This has been done by successive renewals of the original scheme, the latest to run until March 31, 1955.¹¹

In 1946 the Committee formally reviewed the experience of the tea industry under regulation.¹² It was not opposed to consumer representation but did not know how to accomplish it effectively. It recognized that limitations on new planting "either within the regulating countries or elsewhere cannot be continued indefinitely," and favored some form of regulation for the industry, with an intergovernmental agreement substituted for the producers' agreement.¹³

The Interim Producers' Agreement of 1948-50 differed from the terms of Chapter VI of the Charter in that it was not an intergovernmental agreement, participation was limited, no provision was made for consumer representation or equality of voting between producing and consuming interests, and it was not administered by a "commodity council" with an independent nonvoting chairman.¹⁴ Even this nominal, stop-gap agreement encountered difficulties in the matter of participation. The Committee was obliged to make concessions, as it had done several times in the 1930's, in order to secure the adherence of even relatively minor producers.¹⁵

¹¹ Provisions of the current agreement (summarized in Chapter 11) do not differ materially from earlier ones.

¹² In connection with preparations for the London conference in November at which a draft of a constitution for an International Trade Organization was agreed upon.

¹³ ITC, *Memorandum on the Operations of the International Tea Committee (in relation to the Command Paper 6709)* (London, April 1946), pp. 15, 16, 19.

Within the foreseeable future the possibility of a major new area of tea production seems rather remote. Labor as well as capital requirements involved in establishing new estates are relatively large. These two factors alone tend to limit expansion even in areas climatically well suited to tea culture. But even though no new major area of production is a near-term prospect, the output of numerous small and scattered areas may be considerably enlarged. What the growers in these miscellaneous territories lack in productive efficiency may be compensated for by proximity to local and regional markets, with or without protection.

¹⁴ ITC, *Report . . . , 1st April 1941 to 31st March 1949*, p. 14.

¹⁵ Pakistan was reluctant to join the Interim Producers' Agreement. According to the Commerce Minister: "We felt that being a small producing country, with ample scope for development of the area under tea, the agreement would unnecessarily place restrictions on our expansion plans. We suggested amendments. . . . After prolonged negotiations, the Committee accepted the amendments and the Pakistan Government accordingly signed the agreement." *Tea & Rubber Mail*, Mar. 17, 1949, p. 92.

The equally important (as a group) producers in British East Africa were excluded for reasons set forth earlier in Chapter 11.

It is Chapter VI of the Charter which has kept tea producers from formalizing a postwar counterpart of the prewar Regulation Scheme. During a so-called "interim period" (up to 1952) the ITO was not expected to become really effective—an allowance designed to permit establishment of world peace and financial stability. Hence, the Interim Producers' Agreement which expired in 1950 (but was conceived in anticipation of ITO ratification) was superseded by a regular five-year agreement among the principal prewar participants in the Tea Scheme.

Surplus production problems that are visualized for tea in the not-too-distant future will probably qualify the industry under terms of the ITO Charter, if it should ever come into effect. Modifications in the present Agreement necessary to conform should not prove difficult. Meanwhile, the commercial tea industry seems determined to protect its position in one way or another, and will doubtless impose regulation of exports if and when necessary even though the ITO is still on paper.

Cocoa.—Unlike the producers of coffee and tea, growers of cocoa have had no experience with international regulatory agreements. Nor is there any near-term prospect that conditions within the world of cocoa will qualify it for consideration under postwar concepts of appropriate intergovernmental commodity agreements. Meanwhile the marketing board system of controls in each of the principal producing countries (discussed in Chapters 15 and 16) is likely to continue and be gradually strengthened.

During the early 1930's when many international regulation schemes were being proposed and put in operation, similar approaches to the depression problems of cocoa were considered at a number of conferences, but the discussions and negotiations came to nothing.¹⁶ It was not until the war that even the national marketing controls were given a real test. The organization of the cocoa industry still renders problems of international control considerably more difficult than those for either coffee or tea. Apparently the most recent consideration given to control of the cocoa trade was shortly after the outbreak of the war.

¹⁶ See F. Arcoletto, "International Organization of the Cacao Market," *International Review of Agriculture*, February 1939, XXX, 51-58 E. It is interesting to note that before restriction schemes for cocoa were proposed, the sentiment of the early conferences was in favor of promoting consumption by advertising and keeping prices as low as possible; but the British government raised objections and such ideas were abandoned.

A spokesman for the British Colonial Office indicated that before the war

there was some support for the idea that order could be brought into the cocoa trade by some form of international regulation scheme on the lines of the then popular (though now I am afraid discredited) rubber and tin schemes. Various overtures were in fact made for such an agreement—the last one, from the Brazilians, in 1940 I think, supported by the United States Government, actually took me to Washington in that year—but no concrete scheme ever emerged.¹⁷

The plan visualized at this time may well have been similar to that instituted for coffee and perhaps inspired for like reasons.

It is probably illogical in some ways even to consider the problems of cocoa control with those of coffee and tea. There is far more elasticity in the demand for cocoa, and responses by producers to price changes are, on the whole, much less predictable than they are for coffee and tea. Until the various marketing boards were formed, there was no leadership for the numerous illiterate and unorganized farmers growing cocoa. But the wide fluctuations in growers' incomes affected the entire economy of the principal producing areas, especially the Gold Coast.

Given the primitive setup of production and the narrow structure of organized markets in consuming countries, it is not surprising that violent fluctuations have occurred in world cocoa prices. The British solution to the problem for West Africa was to provide a buffer (in the form of marketing boards for the Gold Coast and Nigeria) between the native grower and the outside world. Apparently it is now felt that the only solution to the problem of stabilizing the economies of such producing areas is to fix prices to producers in advance for a whole season or more, bearing in mind that profits from high world prices in some years must be reserved to provide incentives to production in years of adverse world market conditions.

The existence of marketing board organizations not only in West Africa but in Brazil and minor producing countries has raised questions of monopoly in the cocoa trade. Conceivably, a tacit agreement among the leading world suppliers, through their respective national control organizations, could create a monopoly of cocoa production and trade. Yet this seems an unlikely prospect, and one can predict rather confidently that such an arrangement would soon fail if serious attempts were made to exploit a monopolistic position. Presumably an intergovernmental agreement under the provisions set forth by

¹⁷ Melville in *Cocoa Conference 1948*, p. 71.

Chapter VI of the proposed ITO would be different, if ever consummated.

In the long run the marketing boards will have to prove their worth. The objectives set for them seem clear enough. If more and better quality cocoa can be supplied to the world markets at "reasonable" prices (i.e., consistent with the movement of prices in general), consumption seems likely to grow as in the past. At the same time, the boards, in West Africa at least, must deal effectively with the problem of disease; otherwise they may not have any function to perform within a decade or two. The acid test will be their contribution toward stabilizing and improving farmers' incomes, providing incentives to maintain output, and increasing the efficiency of the local industry in order to compete successfully with the newer producing areas.

PRESSURES ON THE COST STRUCTURE

If the regularization of production has not been important to the coffee, tea, and cocoa industries during recent years, it nevertheless remains as the Number One long-term problem which undoubtedly must be faced again and again over the years ahead. Meanwhile, rising costs of production have caused more concern in grower and trade circles. For some years it has been possible to pass these costs on to consumers in the form of higher prices, but it is certain that this process cannot go on indefinitely.

With shortages, general inflation in prices for goods and services, sustained or growing employment and purchasing power in consuming countries, it has been possible until recently to secure higher prices and make good profits without seriously curtailing consumption. But all of the factors in the situation are subject to change, even radical change, and important adjustments inevitably lie ahead in various segments of the three industries. Some of the changes have already begun, and farsighted producers have been thinking in terms of their relative competitive position and of the future of the commodities with which they are concerned. Unless pressures on the cost structure of their industry can be relieved in some fashion, they face a contraction in demand and consumption which will be reflected in profits.

Between the plantation or farm and the retail distributor in the consuming country, many costs or expenses are incurred over which the producer has essentially no control. Retail prices are made up of first (farm) costs of coffee, tea, or cocoa, plus such items as handling

to the shipping port; export duties or taxes levied by producing countries; ocean freight and insurance; more handling and storage at the receiving port; import duties and other taxes levied by governments of the consuming countries; processing, packaging, merchandising, and distribution charges; and the business profits of intermediaries along the line. Practically all of these costs have increased over prewar in some degree but not to the extent of the prime costs of production with which this discussion is mainly concerned.

Some years ago, especially in the depressed 1930's, it was fashionable, even in certain responsible circles, to account for the difference between producers' prices and consumers' prices in terms of the profits of middlemen. The spread was wide, and remains so today, but there is nothing unusual or inherently abnormal about a relationship of, say, 1 to 3, between the price growers receive for their raw material in one part of the world and the price consumers pay at the retail level for the derived (processed) product in another part of the world.

The relationship between prices received by growers and those paid by ultimate consumers invariably comes in for scrutiny when governments are obliged to intervene in the affairs of an industry. But this happens when producers' prices are low and the profits from growing shrink or disappear. In postwar years of high prices and profits to growers, the producers' share of the coffee, tea, or cocoa dollar (at retail) has increased, as is to be expected when the raw material is the principal item of cost except at an extremely low level of commodity prices. There have been no urgent investigations or interventions from the producers' side, but there have been some from the consumers' side, notably the 1949-50 probe of coffee prices in the United States.

Instead of a relationship of perhaps 1 to 3 at a moderate price level, producer-consumer prices may be nearer a 1 to 2 relationship at a high price level. For example, in 1943 Latin-American coffee producers received roughly 8 cents a pound for coffee retailing at around 24 cents in the United States,¹⁸ but in 1950 growers were getting over 40 cents a pound for coffee retailing around 80 cents. It is apparent that the key factor in future consumption lies in pro-

¹⁸ See analysis of various costs between plantation and retailer in Wickizer, *World Coffee Economy*, pp. 101-06. Because of many unavoidable expenses of marketing and processing (e.g., shrinkage in roasting), 14-cent green coffee in New York had to retail for 22-31 cents, a spread of 8-17 cents (for the period 1942-47, the margin was relatively stable—from 12 to 15 cents a pound). This 14-cent coffee was worth about 13 cents at the port of shipment in the producing country and around 8 cents on the plantation.

duction costs (and growers' profits) rather than in the many unavoidable costs of transportation, processing, merchandising, and marketing, even though some of these may be too high and the profits of intermediaries may also be large.

All producers are similarly situated in that ever rising costs have been general, but substantial differences appear from country to country and from grower to grower. The variables are indeed numerous and it is impossible to foresee precisely how the problems of costs will be met. However, there are clues and some trends apparently in the making. It seems probable that solutions will be found in due time, but meanwhile consumption will be restricted and the potentialities of the coffee, tea, and cocoa industries will remain unrealized.

Such information as it has been possible to obtain on coffee, tea, and cocoa production costs has been gathered together in a special Appendix Note to which the reader is referred. For reasons discussed in this Appendix, the data presented are unsatisfactory at best, especially in measuring changes that have occurred. Nevertheless, this fragmentary information of highly variable quality must, in the absence of anything better, be used for whatever generalizations are attempted. As might be expected from the structure and development of the respective industries, by far the best information on costs is for tea and the most unsatisfactory for cocoa; but probably the most unreliable is for coffee.

Practically all costs involved in producing and marketing coffee, tea, and cocoa have increased in the past decade, but undoubtedly the labor item has caused the most trouble, and of course is the most important in over-all costs. From the coffee growers' standpoint, some idea of the postwar labor problems has been suggested by the account of developments in Brazil, narrated in Chapter 6. But perhaps the tea growers of India and Ceylon have faced more acute problems of adjustment, for these were accompanied by simultaneous political changes. And in the tea industry labor costs are tied more closely with the costs of food and clothing. Food (mostly rice) has been in scarce supply for years and has been expensive, yet in one way or another the cost of feeding plantation workers (and commonly their families) has been of vital importance in the rising cost of labor in the major tea-growing areas.

A series of conferences on plantation labor was held in India, beginning in 1947, at which numerous proposals were submitted which were designed to improve labor conditions on estates and fix

minimum subsistence levels. The tea industry of North India made its own inquiry into costs and standards of living of Bengal and Assam workers,¹⁹ and family budget studies were made in South India. Data submitted on family income and expenditures of tea-garden employees to the second conference, held in 1948, revealed the low living levels of labor which were not, however, confined to plantations. Three-fourths of family income went for food, implying a "consumption pattern of the very poor," but it was also pointed out that these data did not include housing, firewood, medical attention, and similar services provided free by the estate. In Madras, inclusion of such items in family budgets brought the food proportion of total expenditures down to 62 percent.

A government questionnaire submitted to the tea industry in 1949 brought complaints about labor similar to those heard in other parts of the world, but especially regarding coffee workers in Brazil. Managers of estates pointed to the short hours of work, absenteeism, deteriorating standards of work, and the truculence of labor unions. The general opinion was that the new Indian government had moved too rapidly on behalf of plantation labor and that serious production problems had arisen as a consequence. The tea industry of course was taxed to finance the various social services provided by law, and the increased minimum wages and concessions.

A year earlier labor costs were estimated to have increased almost four times prewar in some producing areas, and at least three times in most of the important ones. With labor costs accounting for roughly 60 percent of total production costs, the effects on the cost structure of the industry were easy to calculate.

Data on production costs of five groups of estates, representing 25 percent of South India's tea output, were compiled in 1948 in connection with the negotiation of a new contract with the Ministry of Food.²⁰ These showed the average unit cost of made tea to have increased about two and three-quarters times over prewar basic years; the range for the five groups of estates was 237-358 percent. Labor costs were reported as nearly four times prewar, and the productive efficiency of labor "greatly depreciated." During the same year an

¹⁹ Labor unrest and strikes in the tea gardens of Assam in the early postwar years were attributed more to the scarcity of essential articles like cloth, dal, and mustard oil than to the rise in the cost of living, according to the Report of the Controller of Emigrant Labour for 1945-46. *Indian Information*, Oct. 1, 1947, pp. 217-18.

²⁰ Presumably by the United Planters' Association of Southern India. Reported in *Tea & Rubber Mail*, Dec. 9, 1948, p. 494.

index of tea workers' wages in Ceylon showed increases of 307-331 percent over 1939.²¹

Until at least 1947, however, the tea industry was generally conceded to have enjoyed a generous measure of prosperity, despite much higher costs of production. Contracts with the Ministry of Food on bulk purchases made adequate allowances for rising costs, and good prices were also obtained for tea not thus sold. Upon the division of India, in August 1947, complications arose. The new national government forced producers to make two increases in "dearness allowances" which many considered unnecessary.

A typical management complaint, which has a familiar ring elsewhere, was this: "The labour on the tea estates work as much or as little as they like, and the managers today, instead of being able to go round their gardens and see that the allotted work is being carefully and properly executed, are 'tied up' in their offices filling up forms."²² On the other hand, reports from some districts suggest that labor, restive after the war, had "settled down" considerably, and that management enjoyed stronger support than when the country was in British hands.

Nowadays the estate laborer seems to be provided with almost everything needed for himself and family. His wages and welfare are commonly protected, if not determined, by the government. In addition to housing, medical services, and oftentimes enough land to grow a substantial portion of his food requirements, the tea industry in India and Ceylon adopted measures to provide him with food and clothing at concession rates as protection against wartime and post-war inflation and price fluctuations. As noted earlier in Chapter 6 much the same kind of social security was beginning to be provided coffee labor in Brazil, and some other Latin-American countries, following depression in the industry during the 1930's.

The problem of an adequate supply of cheap and effective labor remains one of the most important with which tea-estate managers must deal. Since producers think the day is probably past when labor costs will return to prewar levels, they have been turning their thoughts recently to the prospects of mechanizing field operations. This had long been considered impracticable, at least in the black-tea countries, but the possibility of reducing labor requirements by one-

²¹ *International Labour Review*, December 1949, LX, 595.

²² L. W. Badnall, addressing the Cachar and Dooars Tea Company, Ltd., annual meeting, as reported in *Tea & Rubber Mail*, Sept. 22, 1949, p. 391.

third, together with corresponding reductions in the cost of food and clothing at concession rates, has spurred the development of plucking machines (discussed below).

Emphasis has also been placed on further increasing yields per acre without resorting to coarser plucking. It requires about the same amount of labor (roughly 1 worker per $\frac{2}{3}$ acre) to work a poor-yielding garden as it does a high-yielding one. During much of the year, labor in Northeast India works very short hours. Inadequate yields, inefficiencies accompanying short hours, and the seasonality of production, all tend to raise unit costs and increase the amount of working capital needed for satisfactory operations. This is clearly illustrated in the contrast between North India and Ceylon tea companies.

Tea is produced throughout the year in Ceylon, and it reaches the market faster than in India; hence less working capital is required. Ceylon companies can thus pay a higher percentage of earnings in the form of dividends. But production costs have increased more in Ceylon than elsewhere since the war, and the competitive position of Ceylon teas has been threatened.²³ The costs connected with feeding plantation labor have been higher, owing to the dependence of the country on imported rice, but these and similar costs have been somewhat obscured in operating results because of accounting systems that charge such expenses against individual items wherever wages are involved (see Appendix Note).

Because yields must inevitably affect production costs, much interest attaches to scientific opinion that for coffee, as with cocoa, they can be doubled or even trebled.²⁴ But such improvement implies

²³ The hazards of generalizations are illustrated by the results of the Estates & Agency Company which owns estates in Ceylon and Southern India. From its annual report these interesting data have been extracted, suggesting very satisfactory profits despite difficulties:

Year ending 30 June	Tea crop (thousand lbs.)	Cost of production (per lb.) d.	Sale price (per lb.) d.	Profit (per lb.) d.	Crop profit £	Percent on ordi- nary capital	
						Earned	Paid
1939	3,036	8.1	11.5	3.4	43,379	8.0	5
1940	3,074	7.6	12.8	5.2	45,912	8.5	5
1947	3,737	13.9	23.3	9.3	134,375	24.3	12
1948	3,631	16.8	28.7	11.9	176,596	29.3	12

²⁴ In Central America (Guatemala, El Salvador, and Costa Rica), U.S. Department of Agriculture scientists, in co-operation with local agricultural scientists, are improving coffee growing by applying techniques similar to those used by fruit growers in the United States. They estimate that 30 percent of the trees give about 70 percent of the yield. By culling, selection of the best plants and cultural methods, planting more densely, and so on, they are confident of average yields around 3-5 pounds

better planting materials and cultural methods. For tea, the latitude is apparently not so large.

The expansion in tea yields since the early years of the war was accomplished chiefly by coarser plucking and secondarily by more intensive methods of cultivation. But since the tea industry was established in Northeast India, yields have increased remarkably. "Nowadays planters talk confidently of raising the crop to 30 maunds (2,400 lb.) per acre."²⁵ In 1885 the average harvest was about 320 pounds or less. During the war years 1940 to 1945 the best properties turned out nearly 1,600 pounds to the acre when all-out production was called for. The scientists believe that in addition to improved cultural methods, already introduced, still further possibilities exist for increasing yields by the development of better planting materials. "When more is known about line selection, and clones or clonal seeds are available to the industry, yields of 30 mds. and more may become commonplace."²⁶

Some of the measures currently being taken or considered for increasing productive efficiency and relieving the numerous pressures on the cost structure of the coffee, tea, and cocoa industries are discussed in following sections.

NEED FOR IMPROVEMENTS IN COFFEE GROWING AND PROCESSING

For many years it has been rather widely recognized that the production side of the coffee industry has shown very little improvement in techniques. While other important international crops have recorded remarkable progress in yields, quality, and costs, coffee growing has been more or less static. Even the Coffee Board Study, sponsored by the principal but laggard coffee-growing countries of the world, concluded a few years ago that "perhaps" the most important problem confronting the world coffee industry was the need "to apply the results of a program of scientific experimentation and research directed toward the improvement of practices in the planting, cultivation, and processing of coffee."²⁷ One of these days this need will become sufficiently apparent, and the pressures sufficiently great, that something will be done—at least the application of the knowledge already gained through not-too-vigorously-pursued research efforts.

per tree vs. around 1 pound today (range .1-14). U.S. Dept. Agr. Press Release, Mar. 19, 1950.

²⁵ *Tea & Rubber Mail*, Aug. 25, 1949, p. 345.

²⁶ *Ibid.*, Sept. 15, 1949, p. 376.

²⁷ *Coffee Board Study*, p. 31.

Experimental work during recent years in some of the relatively progressive mild-producing countries of Central America has suggested numerous departures from traditional cultural methods. For example, the work of Dr. William Cowgill, chief of the coffee section of the joint United States-Guatemalan agricultural development project, is reported to have resulted in greatly increased yields—in one case 14 pounds per tree *vs.* an average yield of around 1 pound.

Most coffee planters—"there are no coffee growers," says Cowgill—plant the trees and leave the real production problems to their poorly paid help, who simply follow tradition. In Guatemala, the tradition was set about 50 years ago in a handbook written by an Englishman after a three-week tour of Central America. Its main recommendation to coffee planters: plenty of shade (from other taller trees) and 12-ft. spacing between the coffee trees. Though his experiments are not yet conclusive, Cowgill believes that the elimination of shade would increase production. His experiments also indicate that the number of coffee trees per acre, now about 350, could ultimately be increased to 850.

To boost the yield per tree, Cowgill applied techniques that growers of other major crops have used for years. . . . His conservative estimate is that adoption of this procedure would triple production.²⁸

It is believed that production costs for coffee with shade are lower than without, primarily because less labor is required for cultivation. But even if this contention cannot be established, shading undoubtedly affects long-run costs by helping to maintain soil fertility through litter deposits, prevents erosion, and provides protection against weather hazards (freezes, droughts, and severe winds). With shading, the total yield over the life cycle of the coffee tree is thought to be smaller, but year-to-year production tends to be more uniform, and trees are expected to produce for a greater number of years. Almost everyone concedes that the quality of shaded coffee is generally superior to unshaded.

Presumably offsetting the advantages of shading for coffee, several of which seem well established, are the contentions of many Brazilian growers that harvesting and processing are more difficult and expensive, and that the danger from insect damage is greater, especially from the coffee-bean borer. They also maintain that production over a period of years is "much less" than for nonshaded coffee. The principal point against shading, at least from the Brazilian viewpoint, is the cost of harvesting. But this is only because of the system employed of stripping the branches of the tree of all cherries at one time. Picking only the mature fruit, as is done generally in the mild-produc-

²⁸ *Time*, Jan. 16, 1950, p. 32.

ing countries, naturally requires more labor. The Brazilian argument against shading seems based also on the difficulty of separating beans on the ground from the greater amount of organic material found around shaded coffee. Yet in Brazil it is customary to clear around the trees prior to harvesting.

As for spacing, it was pointed out in Chapter 3 that expert opinion seems to be that the number of trees planted to the acre in countries like Brazil could be substantially increased, perhaps doubled, with numerous benefits and economies. However, closer spacing is thought by some to limit future possibilities of mechanizing such operations as weeding, fertilizing, and spraying.

Mechanical cultivation of coffee has been tried in some places but is not common practice. Characteristically rolling or hilly growing sites present various difficulties. In Brazil the arguments against mechanical hillside cultivation are that it might encourage soil erosion, and that fewer workers would be needed during the growing season, with the result that at harvest time there would be a shortage of labor. The latter point applies with much less force in countries where harvesting extends over a period of months rather than being concentrated in a few weeks. But unquestionably some of these arguments are based upon a lack of desire to change.

Reliable information on the extent of use of fertilizers in coffee-growing countries is apparently not available. As a generalization it is frequently said that fertilizers are not used in Brazil, and this undoubtedly applies to the older coffee zones such as in the states of Rio de Janeiro and Espirito Santo, but there seems to be a limited use in the newer zones in the states of São Paulo, Paraná, and Minas Geraes. Although chemical fertilizers are said to be finding favor in Brazil, experimental data suggest that, unless mixed with something like coffee husks, they are not wholly satisfactory, and green manures seem least satisfactory of all. Animal manure is considered the best type of fertilizer, coffee hulls second best, and commercial fertilizers inferior to organic fertilizers.²⁹ Extensive studies on the root systems of coffee trees show more than 90 percent of the roots are in the top 12 inches of soil, hence chemical fertilizers covered with a layer of leaf mulch soon become available to thousands of fine roots.³⁰

A very large proportion of the world's coffee trees have been planted on newly cleared forest land. Under these conditions there

²⁹ Spielman, "Brazilian Coffee Goes to Market," *Agriculture in the Americas*, May 1945, V, 85.

³⁰ Telford, "Saving Puerto Rican Coffee Soil," *Agriculture in the Americas*, August 1946, VI, 121.

is usually an ample supply of decaying organic matter which tends to speed growth and heavy early production. But as the trees become middle-aged and clean weeding is practiced regularly, erosion sets in, little or no soil nutrients are replaced, production gradually declines and finally becomes uneconomic. In the long history of coffee cultivation in Brazil, trees on eroded and exhausted soils have been abandoned and new ones set out elsewhere. Thus, there has been a constant migration of the center of the coffee belt; at one time or another coffee has been grown in practically every state. Today, the remains of old coffee plantations are said to exist even in the forests of Mato Grosso and Goiás.

Only in very recent years has some attention been given to rehabilitation of once highly productive plantations, and this has come only after the supply of rich virgin soils, accessible to transportation and shipping ports, has become more and more limited. Soils exhausted from long use in coffee growing can be reclaimed only at substantial cost. Given sufficient price inducement, and in the absence of readily available new lands, tendencies toward reclamation and better maintenance during the life cycle of the trees should logically be expected.³¹

Planting coffee on hilly or mountainous land has the advantages discussed in an earlier chapter, but steep soils are also most subject to erosion and leaching. Porous soils that are ideal in meeting the drainage requirements of coffee lose plant food easily. This is especially true of the sandy loams in contrast with soils of higher clay content which tend to be more compact. Erosion can be a major factor in the long-run productivity of many soils, but it seems doubtful that soil erosion can accurately be described as the Number Two problem of Latin America, as has been done by some writers.³²

Control of soil erosion is a major problem faced by coffee growers generally, but especially in the older producing areas of the Americas. In the West Indies, where coffee was once an important

³¹ Even before the great increase of 1949, coffee prices were high enough to provide "very satisfactory" profits to well-managed and -located fazendas. The United States Consulate in São Paulo reported in 1948: "In general the yield of 750 kilos per thousand trees covers the expense of cultivation and preparation and gives an adequate margin of profit probably between \$50.00 and \$75.00 per thousand trees. The average for the State of Sao Paulo is perhaps considerably below this figure and even in the current good years the yield is less than can be obtained from rice or even cotton, corn or peanuts. . . . In the long term . . . returns from the other crops probably will decline restoring coffee, in part, at least to its former favored position." NCA, *Weekly Letter*, May 21, 1948.

³² For example, William Vogt, "A Continent Slides to Ruin," *Harper's*, June 1948, pp. 482-83.

export crop, soil erosion and exhaustion are commonly credited with contributing heavily to the decline of the industry.³³ In Central American countries few growers use modern soil conservation methods, even though in such countries as El Salvador 95 percent of the coffee output is grown on slopes. In Brazil, on some three-fourths of the coffee lands, erosion is said to be a serious problem.³⁴

Efforts to restore eroded and exhausted coffee soils have thus far met with limited success, but most such efforts have been made only in recent years and on a fairly modest scale. Experts of the U.S. Department of Agriculture and other agencies have demonstrated that coffee can be grown without appreciable soil erosion.³⁵ Experiments in Brazil in restoring soils long used for coffee have been somewhat encouraging. There seems basis for the belief that such efforts are justified, especially in periods of high coffee prices.³⁶

³³ "Erosion . . . has literally carried away all but the remnants of once extensive plantations" that produced the celebrated Blue Mountain coffee of Jamaica. *Report on Agriculture, Fisheries, Forestry and Veterinary Matters* (Cmd. 6608), p. 65. In Puerto Rico coffee is no longer the main export crop, but the erosion caused when it was, in the 19th century, is still apparent (Telford, *op. cit.*, p. 118). Sometimes the soil conservationists neglect other factors in the decline of the West Indian coffee industry. For example, with regard to Puerto Rico, "it would appear to be going somewhat far afield to blame hurricanes, loss of the Spanish market, erosion, diminishing yields, and so forth, for the gradual decline of the coffee industry, when the real cause has been the lack of assurance, since 1898, of a fair price per pound for every pound of Puerto Rican coffee produced." R. E. Crist, "Sugar Cane and Coffee in Puerto Rico, III," *American Journal of Economics and Sociology*, July 1948, VIII, 470.

Coffee did not receive tariff protection in Puerto Rico whereas, after United States control, sugar did, and its production became highly profitable. Thus began the concentration of land in the hands of sugar growers to the neglect of coffee, according to the author.

³⁴ For a brief semitechnical description of methods tried and used (mostly in São Paulo) to control erosion in Brazil during recent years, see G. M. Roseveare, *The Grasslands of Latin America* (Bull. 36 of Great Britain, Commonwealth Bureau of Pastures and Field Crops, 1948), pp. 188-90.

³⁵ Their approach in Puerto Rico was to abandon the clean cultivation system, substitute one of individual terraces for each tree, mulches of crop residues, fertilizer, thinning, and elimination of disease and excess shade. At the Agricultural Experiment Station of the University of Puerto Rico average yields of 668 pounds of dry coffee beans per acre have been obtained *vs.* an island average of 104 pounds—about twice the yield before the turn of the century when Puerto Rican coffee soils were still productive. Telford, *op. cit.*, p. 118.

³⁶ São Paulo provides an interesting example. During recent years results have been produced "that indicate the possibility that replanting can be successful at least to a limited extent . . . in the old coffee region near the town of Palmeiras . . . 3,000 trees have been set out with heavy fertilizing with barnyard manure . . . about 30 pounds per tree each year. This quantity is presumably not practical as a large scale operation but . . . results have been fully equal to the best plantings in recently cleared lands." NCA, *Weekly Letter*, May 21, 1948, quoting a letter from the consulate in São Paulo.

Another field for improvement is in coffee processing. In recognition of the superior merits of washed coffee, or at least in response to trade demand, Brazilian growers have been encouraged by their government since the 1930's to use the wet method of preparation.³⁷ Yet progress in shifting away from the dry method has been very slow. Growers are conservative, for years many lacked the resources for pulping equipment, and probably a major difficulty was the shortage of labor during the harvest season.³⁸ At the same time the bulk of all coffee shipped from rival producing countries is now washed.

A relatively new development in processing equipment, apparently not yet widely adopted, is a machine (the Raoeng cylinder pulper) for pulping and wholly removing the mucilaginous coating in one operation under high water pressure. With this process, fermentation becomes unnecessary and drying is speeded up. The equipment is not expensive but requires ample water (not always available in many mountainous areas). Operating costs are said to be high, but this disadvantage is thought to be offset by economy in time and installation costs. Beans processed by this method do not have the traditional waxy appearance, but cup tests show no difference in important cupping qualities.

Thus far, the greatest application of the depulping-by-water-pressure process has been in Africa, where it has been demonstrated that fermentation is not necessary with *robusta* coffees. Efforts are being made to install the equipment in place of fermenting tanks (or where they are located) in Latin America, wherever applicable. It is expected in some quarters that, under proper conditions, fermentation can be eliminated in the preparation of *arabica* coffees. Already experiments have shown that fermentation can be speeded and made more efficient by yeasting agents; perhaps the next step is to devise processes not involving fermentation at all. Elimination of the fermentation process is also sought in the handling of cocoa; attainment would be of major significance.

The foregoing are only some of the numerous problems of coffee production. Answers to many of them can, and will, be found in time, but apparently production costs must get very much out of hand

³⁷ In 1936 a subsidy payment of Cr.\$3.00 per bag was inaugurated for washed coffee. At the same time, in order to encourage the production of better types, a subsidy of Cr.\$3.00 per bag was made on Type 3 or better coffees, with preference for all better grades on rail shipments to ports.

³⁸ Over a decade ago it was estimated that for one reason or another 80 percent of the coffees of São Paulo could not be treated by the wet method. Bally, "Recent Efforts for the Improvement of Brazilian Coffee," *International Review of Agriculture*, January 1937, XXVIII, 20 T.

before serious attention is given to the causes of high prices, consumer resistance, declining consumption and profits. Unless a break is made with the past, depression in the industry is again inevitable. Heretofore, depression and unprofitable production have always meant that "improvement" was a luxury that could not be afforded. When, on the other hand, prices were high and profits were lush, improvement was commonly regarded as "nonessential," except as temporarily better upkeep might contribute to larger crops while prices remained high.

NEW TECHNIQUES IN THE FIELD AND FACTORY—TEA

Despite its traditional conservatism, the black-tea industry of the world is far in front of the coffee and cocoa industries both in past performance and plans for adjusting to future conditions. Some of the more important and potentially significant efforts to cope with high and rising costs of production, especially in the field of mechanization, are worth recounting. These may be developments of a fairly long-term nature, yet the record of the tea industry suggests a continuing interest in progress and a willingness to change under the pressure of circumstances.³⁹ It is well organized for research and has secured results that perhaps are only attainable in an industry dominated by estate companies and long controlled by British and Dutch interests.

The Indian Tea Association's Experimental Station at Tocklai (Assam), for example, has been carrying on specialized research on the cultivation and manufacture of tea for half a century. It was one of the first institutions of its type to be established in the interests of a world commodity. It is not surprising, therefore, with this extensive background, that the results of tea research are generally quickly applied in practice, perhaps more so than for any other agricultural industry.⁴⁰

Yet the application of the results of recent experimentation in the mechanization of field operations and in manufacturing methods cannot be so rapid. The departures are too radical and the implications too far-reaching to permit quick changes. Some of the ideas

³⁹ For an entertaining and perhaps prophetic look ahead for half a century, see C. R. Harler's "curious experience," recounted in *Tea & Rubber Mail* (Apr. 20, 1950, pp. 168-70) under the title "Tea Planting in the Year A.D. 2000." The setting for the mechanized tea industry that the author foresees is in Africa.

⁴⁰ On "Recent Advances in Tea Research," see T. Eden in *World Crops*, November 1949, I, 66-69, 132-35, 165-67. Cultural practices, pathological problems, and manufacturing processes are discussed in this series of three articles.

now being considered by tea producers are still quite undeveloped, but they are indicative of trends that bear watching.

Mechanization of tea plucking.—In the manufacture of tea in the black-tea countries processes are highly mechanized, yet in the field there is practically no mechanization. Cultivation, pruning, and plucking are, with few exceptions, still done by hand. After World War I when labor was short in North India, owing to the toll taken by the flu epidemic, there was much talk of mechanization. Some companies introduced tractors for clearing new lands. The use of tractors, however, has been limited for other operations, because only a very narrow machine can be used between the tea bushes, once they are planted. "Cultivation as a mechanical problem has ceased to intrigue the Assam planter, but plucking still necessitates a large labour force . . . and the general feeling is that this work must, sooner or later, be mechanized."⁴¹ Several machines for pruning have also been tried, but apparently without success.

Rising labor costs during recent years have stimulated a new interest in mechanical plucking in all of the principal tea-growing countries. Mechanical plucking may involve simply the introduction of some type of hand shears, or the use of mechanical equipment of more or less elaborate design. In both cases, the quality of leaf is admittedly not as good as obtained by traditional plucking without tools of any type. The Japanese have used light hand shears for many years, increasing the weight of leaf taken per day per worker some 8–10 times, or to around 300 pounds. In contrast, a good plucker in North India may pick only 120 pounds by traditional methods under the most favorable circumstances. But plucking with shears can be successful only under certain flushing conditions.

Harler maintains that the mechanical plucking of tea is not primarily an engineering problem, but is fundamentally concerned with the manner of flushing the tea bush.⁴² He explains that the countries most suited to mechanical plucking are those in the higher latitudes—Japan, China, and Northeast India—where the bush is dormant in the cool season and then flushes vigorously for the 5 to 7 hot, humid months. In countries nearer the Equator, where leaf growth is more or less continuous, the plucking problem is more complex, and he doubts that mechanical plucking can be profitably employed.

Two types of mechanical pluckers, both in an experimental stage

⁴¹ C. R. Harler, "The Mechanical Plucking of Tea," *Tea & Rubber Mail*, Mar. 3, 1949, p. 71. Supplementary comment in the issue of May 12, 1949, p. 175.

⁴² *Ibid.*

of development, have received attention. Since whatever equipment is employed no selection of leaf is possible, the plucking interval must be lengthened in order to avoid taking unready leaf. This introduces complications of varying magnitude. Furthermore, plucking by machine involves the additional matter of planting methods.

Experiments conducted in Malaya with one type of mechanical plucker the "Tarpen Trimmer," were not very successful, partly because of the system of planting in that country. The use of this particular device was not considered.

economical and practicable under the prevailing wage rates and system of planting . . . the planting of tea in hedges would be more suitable. . . . A promising future for such a machine is envisaged only if it can be made to operate with a long blade which can straddle the bushes planted in a hedge and can be made to move quickly down the hedge, cutting as it goes. It is thought that only by some such means can sufficient labour be saved to justify its use.⁴³

Other considerations in the introduction of mechanical plucking are problems connected with the displacement of labor and the reception of the trade to the rougher leaf which would result from mechanical plucking. Because adoption in some tea-growing areas seems more practicable than in others, it seems quite possible that characterization of the industry in different countries may change in the future. Methods in North India, for example, may contrast more noticeably with those in Ceylon or Indonesia.

Whatever the future of mechanical plucking, some tendency in this direction seems indicated in view of pressures on the cost structure of the industry. To whatever extent it is adopted, modifications and adjustments of prime significance will be involved. In Assam, according to Harler, bushes might be plucked with hand shears only 6 instead of 24 times during the season, and the labor force needed would be only one-eighth of that presently employed.⁴⁴ Quality would not be as good, but the finer leaf could be sorted out. The pluck might average four leaves and a bud.

If machines for plucking are perfected and demonstrated to be economical, changes in tea growing might be even more radical. It seems certain that hedge planting would have to displace the system of square or triangular placement of bushes. Level growing sites would probably be preferred, and areas farther away from the Equator would likely be sought for any new development of tea production.

⁴³ N. Kanagaratnam, "Mechanical Plucking of Tea with the "Tarpen Trimmer," *Malayan Agricultural Journal*, July 1949, XXXII, 262-63.

⁴⁴ Harler, *op. cit.*, p. 72.

Potential changes in tea-manufacturing methods.— From the standpoint of the average tea consumer, the mechanization of tea plucking would hardly be noticeable, but some of the departures currently being proposed in traditional methods of manufacture would be. The production of so-called “tablet teas,” for example, would make preparation of the beverage similar to the making of a hot cup of bouillon. Whether or not a change in the form of the product which has been used for centuries to brew tea would encounter serious consumer resistance is a moot point. The argument that if the end result is the same, the tea drinker would not be unduly disturbed seems reasonable enough, but may be faulty over the short run.

As mentioned in Chapter 8, a break with traditional methods of tea manufacture that would eliminate withering and rolling would be radical indeed. Some researchers feel, however, that the tea trade has placed a fictitious value on appearance that does not greatly concern the ultimate consumer, and that the simplified process would result in substantial economies.⁴⁵ Furthermore, it is held that the modified process is capable of elaboration so that a more conventional appearance can be given to the product (“a brown flaky leaf”) which results from this method of manufacture.

Confirming the above view, one authority calls attention to two methods of manufacturing tea from unwithered leaf, both of which “produce teas which, though unorthodox in appearance, possess liquoring qualities far in advance of normally made teas without any loss in flavour or quality or character.”⁴⁶ One method, already in commercial use in North India, involves a very short roll of shredded leaf in open-top rollers. The other, still in an experimental stage, dispenses with traditional rollers entirely. (This is the method which was developed by the St. Coombs Estate of the Tea Research Institute of Ceylon and which was used on a commercial scale as long ago as 1938.)

The writer (R. Shaw) states that recent investigations into the

⁴⁵ Except for fermentation practices, modern factory processes more or less follow ancient hand methods of tea manufacture, machines being substituted for human hands. “The clinging to the present tea rollers . . . is due to the traditional demand for the twisting of tea leaf and its resulting appearance . . . in reality, the twisting is only one way, and an inefficient way at that, of extracting juice for fermentation and production of liquors which constitute the beverage . . . Investigations showed that in all probability the only purpose served by withering was to bring the leaf into suitable physical condition for treatment in the conventional machines.” Buckley, “The Manufacture of Tea,” *Malayan Agricultural Journal* (Dept. of Agr.), April 1948, XXXI, 123-24.

⁴⁶ *Malayan Agricultural Journal*, July 1948 (reprint of article by R. Shaw in *Chronica Naturae*, Vol. 104, No. 3, March 1948), p. 190.

chemistry of tea show little or no chemical change from withering: "all it achieves is to get the leaf into a condition in which it can be satisfactorily rolled in what must be the most cumbersome and inefficient machine that has ever been devised for a major industry" (p. 189). Elimination of withering, he contends, would result in "enormous" savings "both in capital cost of withering lofts, and in time and labour saved in daily working" (p. 191). Furthermore, he maintains that traditional rollers impede more than they assist in the efficient disruption of the leaf cells and expulsion of the essential oils and juices so that exposure to air can promote enzymic activity and oxidation (p. 189).

Dissenters object to "tablet" or "block" teas on the basis of their alleged inferior keeping qualities; they question the contention that the chemical changes from withering are of minor importance flavor-wise; they doubt "any material saving" in manufacturing costs; they cite as a "great" drawback the large percentage of dust produced; and they feel that because a tablet cannot be blended without being broken down and then remade, economies at the plantation would be "largely offset."⁴⁷ Various other considerations are involved.

If the new methods of manufacturing tea (still in an embryo stage) are proved feasible and adopted, the effects on the tea industry will undoubtedly be profound. According to some, such changes would be a solution to the problems of mounting labor and material costs, at the same time meeting the requirements of the consumer for a flavorful brew yielding a greater number of cups per pound.

Certainly, if the end product is as desirable as claimed in some circles, the economies in production would be of far-reaching significance. If the green leaf is to be shredded or pulped, plucking operations would be more economical—they could be mechanized—and sorting before and after processing either eliminated or greatly simplified. Manufacturing time could be greatly reduced and the whole process completed within a few hours of arrival of the leaf at the factory, regardless of weather.

Changes may well be slow and resistance great. Aside from the investment in new equipment that would be required by producers, the trade's functions would be radically altered. Brokers, distributors, and manufacturers of tea machinery have vested interests and are not likely to view favorably the elimination of the need for any of their highly specialized skills. Then there would be new packing and ship-

⁴⁷ See, e.g., correspondence of P. L. Harbour of Walker, Sons & Co., Ltd., Colombo, in *Tea & Rubber Mail*, Feb. 10, 1949, pp. 47-48.

ping problems, and distributors might be obliged to invest in new equipment for packaging the new product. Altogether, tablet teas are not to be dismissed entirely, but their future is not clear at this time. Some practical tea men, while recognizing the value of recent experimentation, feel the need for a still better working relationship with laboratory research workers so that their discoveries may be more easily applied to current problems.

COCOA YIELDS AND THE OPTIMUM LIFE OF TREES

Because the most pressing and vital problem of world cocoa production has been discussed rather fully in Chapters 13 and 16, attention here will focus on some related aspects of the disease problem. Scientists have been forced to examine critically numerous aspects of cocoa culture in their search for ways and means of controlling or eradicating the worst disease and pest threats to production. In efforts to increase output, and overcome the world shortage of cocoa, yields have naturally received much attention. But yields are also important from the standpoint of production costs, even though emphasis may currently be directed elsewhere. As part of the problem of maintaining and increasing yields, questions have been raised, but not answered, about the optimum productive life of cocoa trees.

In many of the important cocoa-growing regions of the world there is currently a problem of how to rehabilitate a worn-out industry. Because of the vital gaps in knowledge about cocoa and its culture, expert opinion is divided on the most promising approach to this problem. Most agree on the desirability of converting cocoa production to a long-term or permanent basis, yet some consider that perhaps only the short-term growing of cocoa is feasible in the future. This would involve the full replacement of trees every 10 or 15 years in the hope of avoiding the worst attacks of disease.⁴⁸

In principle, rotational replanting of cocoa would seem to be a desirable procedure, if for no other reasons than to make use of new and improved planting materials and to maintain solid tree populations. However, so little is known about the optimum life span of different varieties that the drawing-up of a schedule for replacement would be very largely a matter of guesswork today. Apparently there is a belief in scientific circles that it would be profitable to replace trees after 15 to 30 years. This, of course, is a very wide range. It is also inconsistent with evidence that, in the past at least, the pro-

⁴⁸ Frank Engledow in *Colonial* 192, p. 41.

ductive life of cocoa trees has been much longer. Economically, the productive life of the cocoa farm or estate may be much shorter than that of the individual tree, owing to losses and resultant gaps in the stand.

The "economic life" concept is admittedly vague, since it depends upon such variables as current prices and differences in yields of tropical plants of the same age. Nor is ultimate life expectancy of much practical value, except as "economic life" may be pushed to higher limits under certain conditions. One authority states, "The length of life to be expected of many tropical plants, or even their economic or payable life, are subjects on which agricultural science is still remarkably ignorant."⁴⁹

In West Africa cocoa is relatively quite young, yet a number of fields over 50 years old are still in good health and yielding reasonably well, while in the West Indies some trees are known to be over 100 years old.⁵⁰ The average productive life of cocoa in Grenada is said to be "anything up to 80 years" while in Trinidad, where the type of cocoa grown is similar, the "optimum yield" of a plantation comes at about 30 years, followed by a gradual decline.⁵¹ The yield of individual trees may continue to rise with age, but the yield of the field tends to decline as trees die out or are destroyed. Evidence suggests that the profitable life of a cocoa tree also depends upon cultivation methods. Those employed in Grenada are considered the most intensive anywhere, and quite different from the methods used in Trinidad. But some authorities believe that the life of a plantation may be reduced by too intensive cultivation methods; the soil is "used up" prematurely.

Systematic replacement of a portion of the bearing cocoa trees each year would be only following what is considered good practice in estate operations with other tree crops and would seem to have much to recommend it. Certainly there has been insufficient attention

⁴⁹ G. B. Masefield, "The Life of Perennial Plants," *Tea & Rubber Mail*, Sept. 30, 1948, p. 387, reprinted from the *East African Agricultural Journal*. The writer made a tabulation of "the most useful remarks" he could find on the subject. For *arabica* coffee, "average life of about 30 years" (*robusta*, "can live to well over 100 years"); for tea, "economic life over 50 years"; and for cocoa, "the yield . . . is highest from trees of 15 to 25 years old. At 25 to 45 years, yield falls and cost of production rises. After 45 years, yield remains fairly steady, but cost of production still rises."

⁵⁰ One authority states bluntly: "Interest, and even a degree of reverence, may be aroused at the sight of a cocoa tree that is over 100 years old, but senility in a commercial orchard can merely be regarded as sloppy farming." L. J. Schwarz, "The World Cocoa Situation" in Pan-American Union, *Documentary Material on Cacao, Part II* (Washington, D.C., 1947), p. 5.

⁵¹ *Colonial 192*, pp. 32-33.

paid to normal replanting, especially since the mid-1930's. Although it is not known how much control could be secured over the spread of diseases, there was "clear evidence" that *some* of the diseases of cocoa were "diseases of senility."⁵² Replacement of old trees within the plantation would have to be on a block basis since scattered young trees do not thrive under the amount of shade appropriate for mature trees.

In some growing areas it is felt that the replanting of small blocks of cocoa each year is vitally important to the local economy in maintaining the food supply. Various food crops are grown to provide shade for young cocoa. "Trinidad was overflowing with food in the days when cocoa was being planted. If cocoa had still been actively replanted during the war they would have been in a much better position."⁵³ Professor Shephard of the Imperial College of Tropical Agriculture believes that 25 percent of the existing trees in Trinidad could be cut out to advantage and replaced with new stock.⁵⁴

In general, cultural practices in cocoa farming are conceded to be of a low order, and the potentialities for improving yields are undoubtedly enormous. Low-yielding cocoa has always been easy to grow with even the most primitive methods. Estimates of potential output under scientific farming vary widely—more so than would be expected, making due allowances for environmental factors encountered from one cocoa-growing region of the world to another. One authority states that "yields of one to two tons of dry merchantable cocoa beans per acre are within the realm of possibility *via* selection and vegetative propagation as contrasted with present usual returns of 150 to 450 pounds per acre."⁵⁵ Another states that, despite meager basic information, application of what is already known is sufficient to increase average production by more than 100 percent.⁵⁶ Manuring experiments alone have demonstrated the possibility of increasing yields 52 to 70 percent over unmanured plots in the West Indies.⁵⁷

⁵² *Colonial 192*, p. 31. Swollen shoot in West Africa was first discovered in old cocoa. On the other hand, certain pests appear to be partial to young cocoa. The Swollen Shoot Commission of 1948 states that drought, old age, lack of canopy, and poor soils have "nothing whatsoever" to do with that disease. Colonial Office, *Report of the Commission of Enquiry into the Swollen Shoot Disease of Cacao in the Gold Coast*, p. 9.

⁵³ Found in *Colonial 192*, p. 33.

⁵⁴ Interview of February 1949.

⁵⁵ Schwarz, *Notes on Cocoa Production and Research*, p. 4.

⁵⁶ Bowman, "Cacao Center at Turrialba," in *Foreign Agriculture*, December 1949, p. 266.

⁵⁷ F. Hardy, "The Maximum Yield of Cacao," *Tropical Agriculture*, August 1939, XVI, 179-91.

If the *average* yield of cured cocoa beans per good bearing tree is between one and two pounds (or 300 to 600 pounds per acre with 12×12 foot spacing), it is apparent that current yields are low in comparison with the estimates of "potentialities." In West Africa yields of 500 pounds of dry cocoa per acre (on "bush" farms averaging four to six acres) are considered a "fair estimate" and also "average," but on experimental plots in both Nigeria and the Gold Coast yields of 800 to 1,200 pounds have been obtained. Even with 17-foot spacing, potential yields for Trinidad are given as 2,700 to 3,700 pounds per acre *vs.* an average for cocoa under 25 years old of about 366 pounds. On the Gold Coast, yields as high as 2,500 pounds have been recorded, although the average yield for the colony is perhaps in the neighborhood of 600 pounds. In Ceylon cocoa planted in the past few years is expected to yield 900 pounds per acre within ten years *vs.* an average of only 250 pounds for existing stands.⁵⁸

Soils are considered by some authorities to be the principal factor determining yields. Contrary to the usual experience with tree crops, cocoa trees grown on good soils apparently increase their yields with age.

Single trees, without competition, may increase yield for as long as they live—50 years or 100 years. A *plantation*, however, reaches a peak when the trees are chock-a-block. Soils are important, but less so than inherent capacity of trees. A poor clone may increase from 200 pounds per acre on poor soil to 400 pounds on good soil. A good clone may go from 1,500 pounds to 3,000.⁵⁹

Some estimates of yield potentialities are undoubtedly properly described as "fantastic," partly because they make no allowance for casualties. Many authorities believe that 1,500 pounds per acre on good soil is an attainable objective.⁶⁰

Some of the earlier-maturing varieties of cocoa that have been developed reach bearing age in about five years and full bearing when they are 15–20 years old. Certain of the Imperial College selections come into bearing in two years and yield about four pounds per tree at five years—well above the average of cocoa trees planted today. An experimental plot of 12 acres planted to Clone ICS No. 1 in Trinidad, with trees 6-7-8 years old, was expected to produce over 2,000

⁵⁸ *Foreign Crops and Markets*, May 8, 1950, p. 453.

⁵⁹ Bowman correspondence.

⁶⁰ Shephard interview. Professor Hardy believes that simple manuring alone cannot be expected to produce maximum yields on the order of 2,000 pounds, "which is the accepted 'ceiling'." *Cocoa Conference 1947*, p. 33.

pounds per acre during the year ending September 30, 1949.⁶¹ These trees, planted 10 × 10 feet and given no special pruning, would indeed average over four pounds of cured cocoa per tree.

Alternation of yields ("biennial bearing") is believed to apply to cocoa as well as to coffee. This question is now being studied in Trinidad.⁶² Whether or not earlier-bearing cocoa varieties that have been developed will have a shorter life span has not been established. In Trinidad early-maturing selections—trees now some 10–12 years old—have shown no signs of a decline.⁶³ Yet there remains the question of quality and flavor characteristics. Critics suggest that "it is essential that the present I.C.S. selections should not be widely distributed to planters until their flavour-producing potentialities have been established."⁶⁴ Some important characteristics of the new cocoa types will not be known for many years, or until maximum bearing is reached. Meanwhile, there is safety in not planting entirely with any one type.

Until some of the numerous problems of cocoa culture (discussed above and earlier in Chapter 13) are on their way toward solution, and the disease threat to production is met, it seems doubtful that growers will overly concern themselves with the relationship between their costs and prices necessary to assure absorption of available output. But a world shortage of cocoa may disappear sooner than is now anticipated. Producers will then be obliged to meet problems of costs and competition if they are to remain in business. Meanwhile, there are broader matters relating to the future of the commodity, and to certain countries, that should be mentioned.

⁶¹ *Cacao Information Bulletin*, January 1949.

⁶² See suggestive evidence discussed by E. E. Cheesman, "Yields in Cacao Experiments, 1945–46," *Tropical Agriculture*, January–December 1948, XXV, 14–18.

⁶³ Shephard interview.

⁶⁴ B. L. Hancock, "Quality in Cocoa: Trinidad," *Cocoa Conference 1949*, p. 79.

CHAPTER 19

TROPICAL CROP PRODUCTION IN EVOLUTION

To greater or lesser degree the outlook for coffee, tea, and cocoa production is tied to the future prospects for plantation agriculture and peasant-type farming. Changes seem inevitable. The so-called plantation system, ordinarily involving the use of imported capital and management into colonial-type areas for the purpose of developing and exploiting export crops, has many obvious advantages. It is generally efficient and more progressive than other systems of production. For this reason some authorities feel that an extension of the plantation system is an answer to the problem of rising production costs.

But for reasons other than efficiency, better quality of product, and earning value to the economy or to a mother country, peasant production is preferred in many areas as a matter of national or colonial policy. More than economics is involved: political and social considerations loom large and are sometimes more important than anything else. Because cheap labor has long been an essential ingredient of the plantation system, some authorities take a dim view of its future.

To characterize various types of organization for tropical (export) crop production in terms of "systems" is convenient, but may be somewhat misleading. The plantation system is at one end of the scale and peasant farming at the other. In between are types of production not accurately classifiable in either category. The two principal systems here discussed are found to some extent in the coffee, tea, and cocoa industries, but *typically* the plantation system is represented by tea, and peasant farming by cocoa. Coffee production involves both, but the *typical* system employed is something between these two extremes.

This is not the place to debate the pros and cons of one system *vs.* another, a debate which continues to challenge the best minds among those concerned with tropical crop production and the development of undeveloped countries. In fact, the tendency in recent years has been to consider the compatibility of the two systems. Since the war more attention has been given to a possible alternative and new system, one of a partnership between capital, the peasant farmer, and government.

In an able review of the respective contributions made by native peasants and by foreign enterprise to colonial agricultural production, Sir Alan Pim concluded:

A lesson to be learned from the history of commercial and industrial agriculture . . . seems to be that no definite or permanent line can be drawn between agricultural products as regards suitability for plantation or peasant methods of production. Except sisal—and in most countries tea—there is no important crop which is monopolized by plantations; even sugar receives a large contribution from peasant producers in some areas, though they are generally dependent on estate factories for the manufacture of the sugar. . . .¹

But views as to “suitability” of a particular crop vary widely. The problem is so complex that little more than some suggestions of current lines of thought can be undertaken here.

The conflict in views, not explained by anything so simple as location, is illustrated by a consideration of cocoa prospects in different parts of the British-influenced world. For British Guiana and British Honduras, Sir Geoffrey Evans favored the plantation system (each plantation being based on 12 units of about 300 acres each). He feared that a cocoa development project based on small peasant holdings “will never get the necessary yields per acre, the quality, or the control of disease,” and pointed out that it was “much easier for the manufacturers to pay a fair price for a large quantity of produce of guaranteed quality, than to buy from thousands of individuals whose crop varies from good to bad.”²

On the other hand, A. V. Gibberd (senior agricultural officer of the Nigerian Cocoa Survey) favored the native method of production in the British Cameroons area because it afforded “a very great measure of protection against the spread of swollen shoot disease.” Furthermore, he could see “no reason at all why, if given suitable planting material, the yield attained on a native farm should not be as great as on a plantation,” and held that “given the necessary incentive and price premium, the native farmer is capable of producing first-class cacao from the smallest farm.”³ Thus, the experts continue to seek needed information that will help to establish the correctness of views currently being held.

PLANTATION AGRICULTURE

The plantation system of agriculture is found in nearly all of the tropical and subtropical cultivated areas of the world, but reached its

¹ *Colonial Agricultural Production* (Royal Institute of International Affairs, London, 1946), p. 177. ² *Cocoa Conference 1948*, p. 9. ³ *Ibid.*, p. 25.

highest state of development in the former European colonies of southern and eastern Asia. Here the scientific management of land, the development of improved varieties, cultural practices, and processing techniques, together with recruiting, housing, and supervising labor, have been handled in a manner comparable with the methods employed by large-scale industrial enterprises. Laboratories for testing and research have played an important part in product and process improvement. Of the commodities here considered, tea is the foremost example of the advantages of the plantation system.

Although a few very large coffee plantations operate their own railroads, highways, warehouses, stores, and housing projects, management appears to have been neglectful of the type of scientific research that has contributed so much to the progress of other plantation industries, notably the black-tea industry. True experiment stations devoted exclusively to coffee have been in existence only since 1933. They came even later for cocoa, probably because modern plantations are rare.

Capital and labor requirements of coffee culture make the crop one as well adapted to large-scale production as tea. Throughout the world much coffee is grown on estates or plantations, many of them under corporate management, yet the vast and well-publicized fazendas of São Paulo cannot be considered typical of the industry.⁴ A substantial part of the world's coffee is produced on small holdings comparable with the family-size farm found in the United States.⁵ Similarly, partly because processing is relatively simple, cocoa can

⁴ The size of a coffee plantation is a relative matter. In São Paulo almost half of all the coffee trees in the state are found on estates having from 50,000 to 300,000 trees each, but over half of the estates have fewer than 10,000 trees, and less than two dozen have a million trees or more. The world's largest coffee plantation, located in São Paulo, is said to have had, at its peak, over 4.5 million trees. In comparison with the million-tree fazendas of that state, the 100,000- to 300,000-tree plantations, which predominate, may be considered small; but in comparison with the plantations (*fincas*) of Colombia they are large. Some 87 percent of all Colombian plantations, around 150,000 in number, have fewer than 5,000 trees and only 0.2 percent have over 100,000 trees. Even the large estates of Colombia would appear quite small in Brazil.

⁵ Aside from inability to carry on desirable research and development work, the plantation that is too small is handicapped in other ways. For example, in Kenya and British East African territories generally, proper preparation for market and grading to uniform standards are rendered difficult because of the small size of estates and the fact that they are scattered. The average estate is 150-200 acres. In Kenya there are a few over 500 acres, but these are small in comparison with estates even in Central America. For the benefit of the reputation of the coffee from a particular region or country so situated, factory methods of preparation and co-operative grading arrangements have been instituted.

be a small-holder's crop, yet it is also quite appropriately a plantation crop.

Like other perennials, coffee, tea, and cocoa plants have a life cycle during which they grow to maturity, reach maximum bearing, and then gradually decline in productivity until yields are insufficient to compensate for the cost of tending. This life span varies from a few to many decades. Although the history of these crops suggests easy and even careless expansion at times, the spectacular increases in productive capacity that resulted should not be interpreted as a sign of comparatively riskless enterprise. This is especially true of coffee and tea, less so of cocoa as grown on small holdings in undeveloped countries.

During the years of waiting for plants to come into commercial bearing, the typical grower must advance considerable sums of money on which he receives no immediate return.⁶ Meanwhile, market conditions may have been radically altered.⁷ Such uncertainties make coffee, tea, or cocoa growing a highly speculative venture where the rate of profit expected is exceptionally high.

To justify the waiting period and all the risks involved, the grower must assume that demand will increase to such an extent that additional supplies can be readily and profitably absorbed when his new trees begin to bear. But correct long-range demand anticipation is rare. Growers as a group tend to react in the same manner, and thus help to create the cycles in production which affect their profits.

Plantations are able to assume the risks inherent in tree culture much better than the small individual grower. They are better informed and better able to judge future market requirements. They can command the capital necessary to set up large-scale units, provide the required machinery and equipment, and employ technical and operational personnel of competence. They are able to organize for more efficient production all along the line, at the same time provid-

⁶ Sometimes catch crops are planted during the gestation period and even in the bearing period, e.g., with coffee in Brazil and Java. This helps in a small way to realize some early returns from the land, but the practice tends to impair soil fertility and reduce yields. At other times a new tree crop is mixed with permanent and established commercial crops on estates, e.g., cocoa with coconuts or rubber in Ceylon. This practice permits a return from the land during the waiting period, but is usually feasible only under the plantation system of production.

⁷ A satisfactory crop from a commercial standpoint may come sooner after planting if market prices are in a favorable relationship to production costs, or one or two years later if they are not. When many have the same ideas about planting, the individual grower is likely to find that when his trees are ready to bear, the market is poor and prices unremunerative because supplies have become excessive in relation to effective demand.

ing a regularity of supply and uniformity of quality that cannot be achieved otherwise for many commodities.

On the other hand, some of these points of strength may be weaknesses under adverse producing and market conditions. The plantation system lacks the flexibility of the peasant system of production. Its overhead costs are more or less fixed. Its vulnerability to changes has been recognized, especially since the depression years of the early 1930's. Many estate operations nowadays have become more diversified as to products.

When production is not organized under the plantation system, as with tea, it becomes necessary for trade interests to fill some capital and management gaps if their own interests are to be furthered. The extent to which importers and distributors have helped producers of raw materials in backward areas seems not to be generally appreciated. British chocolate manufacturers, for example, have a long record in West Africa with cocoa. No altruism was involved in their efforts to assist the ignorant cocoa grower; mutual benefits accrued.

Trade interests in coffee have been slower to inject themselves in the production and marketing setups of producing countries, partly because conditions were more satisfactory, at least in the larger producing countries. During recent years, however, there has been a growing tendency, especially on the part of United States coffee interests, to assist some of the smaller producing countries in improving quality and marketing methods.

Plantation production has long been heavily dependent upon the extent and character of the available labor supply. With the changes that have occurred in public opinion and government policies, especially since the war, capitalized agriculture can no longer count on an abundance of cheap labor.⁸ It can be quite certain, however, that labor costs will remain higher than before the war, and that more and more will be demanded in the nature of improved standards. If the plantation system is to progress further, it seems inevitable that greater use must be made of labor-saving devices, and the search for and application of new cultural techniques must be pursued even more vigorously.

Mechanization would be much easier for the plantation operator

⁸ Some observers hold that "the extension of the plantation system is finished for a reason not generally recognized. It depended on indentured labour, and such labour is no longer available." See, e.g., W. A. Lewis, "Developing Colonial Agriculture," *Tropical Agriculture*, April-June 1950, XXVII, 64. The author goes on to say that ample land and labor are still available, but contends that "the political obstacles to bringing men and land together are proving insuperable."

than for the peasant cultivator, yet there are many problems to be solved in applying farm machinery, developed in temperate zones, to the special weather, soil, labor, and other conditions of the tropics. Interest has heightened in recent years, experiments have been conducted with Western machinery or adaptations, but the introduction of labor-saving equipment often involves a modification of a rather basic character in production techniques. Such changes, as for example in spacing and arrangements of trees, can take place only at a very slow pace. Many other considerations are involved.⁹

The problems of plantation enterprise, from a purely economic standpoint, seem clear enough, but what is not so clear is how plantations are going to adjust to the political and social changes now unquestionably in process. In order to demonstrate continued justification of large-scale capitalized agriculture, the contribution of the system to the general welfare of the countries in which it operates must be established to the satisfaction of politicians, labor, landowners, government, and many other interested groups. If improved forms of peasant production can be evolved with the financial and technical assistance of government, it seems that these will be favored. But the problems to be worked out are staggering, and results are not to be expected quickly.

PEASANT-TYPE FARMING

Maintenance of adequate cocoa supplies, for example, depends not only upon controlling the spread of diseases and improving methods of production, but also upon providing the peasant grower with incentives to produce and evolving a satisfactory long-term "system of agriculture" for cocoa. The special problems of food supply, debt, development, and so on, in peasant economies, and the vulnerability of areas that become dependent almost exclusively upon one export crop and all the vagaries of the world market, are interrelated and indeed complex.

The rapid rise of the cocoa industry in West Africa ultimately forced government action in the field of marketing, but it was only after the serious threat to world supplies that attention was turned to the longer-term problems of production. These are now recognized as of basic importance to the future welfare of the industry and the producing countries involved.

⁹ See J. E. Mayne, "Mechanization and Farm Machinery—An Approach to Mechanization in Tropical Agriculture," *Tropical Agriculture*, January-March 1950, XXVII, 9-13.

The West African cocoa grower is typically a peasant whose entire welfare depends upon the price of cocoa, his cash crop. Yet the effort he will expend on producing a crop depends upon his wants for consumer goods. High prices alone do not provide an incentive for increased output. Thus, it is of little use "searching for what might be called a fair price if, at the same time, that price was dependent upon the availability of imported goods."¹⁰ Low prices, on the other hand, may create severe hardship through reduced purchasing power and lack of self-sufficiency.

Despite advances made toward the stabilization of incomes through marketing organizations, the peasant cocoa grower faces other problems of fundamental importance. In addition to the threat to his livelihood from the spread of diseases, he "is almost equally affected by the disease of the money lender." Most observers agree with Viscount Swinton's statement: "You have to cut out the money-lender at the same time as you cut out the diseased trees. It must be done drastically."¹¹

Finances of the cocoa industry have not been adequately organized or adjusted to the changes in the character of land tenure which development of the industry itself brought about. As land once plentiful became scarcer and as it increased in value, and as imported hired labor led to nonworking absentee owners, individual ownership began to replace the communal right of occupancy. The chiefs were in a position to enrich themselves by selling their tribal lands, "a practice hitherto unknown and contrary to customary native law."¹² Moneylenders, frequently brokers for European merchant firms, secured a control over the industry which, though not surprising, was highly detrimental to the security of the native cocoa grower's position.

One authority, in referring to the Gold Coast, sized up the situation in this fashion:

If peasant agriculture is to be maintained on a sound basis it must be combined with scientific cultivation and a scientific use of land. As things are, the methods of cultivation are defective and there is widespread insecurity of title. The credit system is inadequate to the agricultural needs, indebtedness is rife, and land is falling more and more under the control of moneylenders and absentee landlords.¹⁸

¹⁰ W. H. Beckett in *Colonial 192*, p. 46.

¹¹ Great Britain, House of Lords, *Parliamentary Debates (Hansard)*, 15 Sept. 1948, 158 (2), 59.

¹² F. M. Bourret, *The Gold Coast—A Survey of the Gold Coast and British Togoland, 1919–1946* (Stanford University, 1949), p. 126.

¹⁸ C. K. Meek, *Land Law and Custom in the Colonies* (London, 1946), p. 175.

The introduction of cocoa, a tree crop which may occupy the same land for 20–40 years, destroyed the balance of a system based on rotational occupation by short-term cultivators.¹⁴

Most observers agree that the primitive farmer is in a highly vulnerable position when he depends solely on cocoa, and advocate mixed farming, or at least the growing of his own food supplies. But systems of mixed farming are not easily worked out and, generally, the places where cocoa grows best are not the places where food can be produced to best advantage.¹⁵ Furthermore, agriculture in any tropical area is so closely identified with the social life of the people that changes may produce more harm than good. Local groups not only tend to be slow to adopt improved cultural methods, but resist changes that involve the acceptance of outside labor into the self-contained family and tribal community.

During the years of the spectacular development of the cocoa industry, British colonial policy faced the choice of allowing European capital to develop the plantation system or of protecting the native cultivator. "In West Africa, the decision was almost always in favor of indigenous owners . . ." ¹⁶ But the peasant agriculturist of the Gold Coast and Nigeria is handicapped in processing and in marketing; he lacks the advantages of central factories, railways, and communications which characterize the plantation system as practiced, for example, in the Cameroons. His holdings are too small to yield sufficient ripe pods to permit proper fermentation. As the yields of his trees have declined after 20–25 years, he is now confronted with a problem of adopting scientific methods. Under the peasant system of production, changes in techniques of this order are not readily or quickly made.

The various special problems of the peasant cocoa grower are fully appreciated, but ideas looking toward solutions are by no means as yet crystallized. Research is indicated, but conditions vary so radically from one cocoa-growing region of the world to another that solutions will apparently be found only on a specific rather than a general basis. Most of the authorities concerned with such matters agree that the peasant grower should aim at self-sufficiency in food in so far as possible, and that he should not be solely dependent upon cocoa if this can be avoided.

¹⁴ C. K. Meek, *Land Law and Custom in the Colonies*, p. 173.

¹⁵ See the discussion of "Systems of Agriculture in Regard to Cocoa" (*Colonial* 192, pp. 48–55), wherein the question is raised whether or not something else can be fitted into the present system of cocoa farming.

¹⁶ Bourret, *op. cit.*, p. 125.

Concern over the adequacy of food supplies on a highly localized basis is no doubt a reflection of wartime lessons brought home by experiences of that period. The weaknesses of a monocultural economy are well recognized and are stressed especially during or following some grave disruption of trade such as is occasioned by a severe world depression or war. Yet it may also be argued that specialization, where advantages for production are pronounced, is the only sensible course to follow. With cocoa the question has been raised whether or not, because of its heavy dependence upon soil type, production should be concentrated in the few places in the world where it will thrive, and leave food production for the native population to others.¹⁷

LONG-RANGE DEVELOPMENT PROGRAMS

Diversification rather than specialization has become an ambition of many nations only in recent years. World War II undoubtedly provided a strong stimulus, especially in underdeveloped countries where the economy was dominated by one or perhaps two crops. A striking feature of the postwar period has been the almost universal desire for some kind of "development," and "long-range" programs have been evolved by the score. These are frequently not much more than wishful expressions, yet promising beginnings have been made by some of the coffee-, tea-, and cocoa-producing countries. A combination of at least two of the three commodities here considered is involved in plans for several Latin-American, African, and Asiatic countries. This is not the place for a survey of developments in these areas but, for several reasons, one of them may be singled out for brief comment.

Africa—the most undeveloped continent, the only remaining colonial empire of consequence, and one of the most promising future sources of many world raw materials—will undoubtedly receive increasing attention in the future. Perhaps Africa will be a proving ground for agricultural "systems" under the most adverse conditions. Already tea estate companies of India, Ceylon, and Indonesia are either moving into East Africa or their management is watching developments there. Similarly, coffee interests in the Western Hemisphere, partly plantation and partly small-farm, look to Africa as a

¹⁷ Voelker in *Colonial 192*, pp. 53, 55. The Gold Coast is an example of a country where cocoa growing and food growing are apparently best done in separate and distinct areas.

growing competitive threat. America's cocoa future is also definitely tied up with developments in Africa.

Reorientation of colonial policy, another feature of the postwar period, brought new relationships among the European powers in Africa. The focus of attention was on general welfare and development plans. These seemed destined to have an important bearing on the future of tropical crop production, especially cocoa in West Africa. Common problems of the postwar era led the colonial powers to attempts at co-ordination of policies. The British, French, and Belgian governments participated in a series of eight technical conferences, between 1947 and 1950, on agriculture, soil conservation, rural economy, forestry, nutrition, labor, education, health, and related matters.

Most of the European colonial powers had plans and programs, at least on paper, for expanding and developing agriculture in their overseas territories.¹⁸ There were plans for increasing the output of export crops in one manner or another, and plans for raising the living levels of the people by increasing the productivity of agriculture.

Planning for the economic development of British non-self-governing territories in Africa was stimulated by the Colonial Development and Welfare Acts of 1940 and 1945. Under these acts substantial sums were made available for speeding progress in the dependencies and assuring longer-term assistance¹⁹ in the development of resources, health, education, and social services. These sums were to be supplemented by territorial revenues, largely made possible by wartime and postwar changes in the tax structure.²⁰ Private capital was not to be excluded, but was invited to co-operate in building up new industries and undertakings, within the framework of basic services which only governments can properly provide.

To meet the need for additional capital for specific development

¹⁸ For a brief review of development schemes and experimental work in process, see W. V. Blewett, "Agricultural Developments in Tropical Africa," *The Colonial Review*, June 1950, VI, 164-67.

¹⁹ By the amending act of 1945 some £120 million was made available over a 10-year period (up to £1,000,000 annually for research), £23.5 million of which was allocated for schemes centrally administered by the Colonial Office, £85 million for colonial territories, and £11.5 million as reserves for supplementary allocations wherever needed. African territories were allocated 64 percent of the total territorial allocation, West Africa (Nigeria, Gold Coast, Sierra Leone, Gambia) receiving £30.4 million of the total £54.65 million allocation. United Nations, Dept. of Econ. Affairs, *Economic Development in Selected Countries* (Lake Success, New York, October 1947), pp. 241-42.

²⁰ For further details on the development and welfare plans for British West Africa, see *ibid.*, pp. 248-54.

schemes, the Overseas Resources Development Act was passed in February 1948. This act provided for the establishment of two public corporations, the Colonial Development Corporation with resources of £110 million, and the Overseas Food Corporation with resources of £55 million. The latter handled the famed groundnut scheme in British East Africa, and the former became involved in the Malayan cocoa-development scheme.

Similarly, the French made 10-year plans for the economic and social development of overseas territories. The Act of 30 April 1946 established the legal basis for the Minister of Overseas France to plan for territories under his authority at that time, set up an investment fund to contribute toward expenses, and provided for central bank loans to agencies or public authorities involved in the execution of the development programs. The French scheme, unlike the British, is thus highly centralized, and envisages state direction and participation with "powers necessary to orient and co-ordinate private activities."²¹

In the Gold Coast, government policy was directed toward "the rapid and continuous increase in the standards of living and dietary of the people," to be achieved by increasing agricultural production. The great and rapid expansion of cocoa production over several decades had operated in this direction, but "the increase in standards of living has been uneven and narrowly based. Cocoa expansion . . . even when resumed . . . will no longer support the accelerated and general advance in living standards now envisaged."²² Government officials saw the need for ultimately replacing the existing basic farming system—one of shifting cultivation: "a system capable of improvement from its present undeveloped state but inherently incapable of sustaining an expanding economy."²³

Some African governments hoped to attract Western capital for the development of their countries. Included were projects such as those previously mentioned for cocoa growing in Liberia and the Belgian Congo, and tea growing in British East Africa. With the tendency toward shrinkage in the size of colonial empires, it seemed logical to expect the European powers to concentrate on the remaining portions. Much of this territory is in Africa, and developments there in the years ahead may well have a significant bearing on the world cocoa, coffee, and possibly tea economies.

²¹ *Ibid.*, p. 268.

²² Gold Coast Colony, *Report on the Department of Agriculture for the Year . . . , 1946-47*, p. 5.

²³ *Ibid.*

Despite optimistic forecasts after the formation of the Liberia Company in 1947, progress was reported as "discouragingly slow" and the difficulties great. As mentioned earlier, the announced program was ambitious and expensive.

Organized under an unprecedented 80-year priority to develop Liberian resources, the Liberia Co's birth had more than a prosaic profit motive behind it, was conceived also to transport the "American Way" to the country—and without incurring the charge of "imperialism" or "exploitation." To many, the project stacked up as an ideal answer to Communism . . . The long-range outlook may appear favorable, but it promises to take a good many years to show results on even a modest scale. Meanwhile, critics feel that risk capital is inadequate, basic know-how pitifully scarce.²⁴

Moreover, it seems likely that such projects will encounter labor difficulties of a type long familiar to colonial administrators in Africa and elsewhere. For various reasons the habit of regular work is difficult to establish, "voluntary underemployment" being preferred.

PRODUCTION PATTERN OF THE FUTURE

The agricultural underpinning of poorly developed countries is currently being examined more and more critically. Issues are not necessarily in terms of a conflict between plantation-type agriculture and an essentially subsistence economy for local populations. Natives need to subsist, but it is also recognized that they should be provided with an opportunity to share more fully in the benefits to be derived from the exploitation of their country's resources and foreign trade. Therein lies the major problem: how best to accomplish this purpose.

Some observers believe that "nothing less than an agricultural revolution is needed in Africa" and only the Western world has the technical knowledge and financial resources for the task. They favor the government-owned, public corporation as the most promising approach to "a rapid integration of the area into the world economy."²⁵ It is felt, for example, that whereas the plantation may have difficulties nowadays in recruiting an adequate labor force, the public corporation could make employment conditions sufficiently attractive to overcome native prejudices against the plantation system.

Others think that the co-existence of the plantation system and peasant farming may be a transitional phenomenon only, that in time plantations will disappear. Dissenters feel that plantation enterprise

²⁴ *Forbes*, May 15, 1949, pp. 26-27.

²⁵ See, for example, F. H. Klopstock, "Agricultural Development in Tropical Africa," *Social Research*, June 1950, pp. 178-79, 187.

is quite competent to adjust to new conditions and take care of its own interests. Where the modern plantation system dominates, changes should be slower and the chances of survival greater, despite postwar irritations and imposed handicaps.

If the plantation system is maintained, as seems likely in the major black-tea countries, it is expected, nevertheless, that local interests will ultimately replace foreign. In Africa, critics of the peasant system point to the "doleful" experience of the Gold Coast where "native agriculture is unable to adapt itself to the requirements prerequisite to its survival."²⁶ Other observers hold that a more experienced peasantry will be able to take over new fields of agricultural production, in which co-operatives may play a large part. But the optimism is qualified: "The general tendency would appear to be in favour of the peasant, provided that he receives such training and scientific assistance as will raise his standard of production . . . and that he has adequate security of tenure and facilities for credit."²⁷ It is usually pointed out, however, that foreign capital and management will have a place for many years to come.

Whatever the outcome of the testing and evolutionary period that lies ahead—and few will venture a forecast—it seems fairly clear that the days of almost effortless exploitation of tropical crops are practically over. In the past peasant growers in backward areas, given an incentive, were able rather quickly to fill a gap in production when world demand was substantially increased. There were unutilized labor reserves then that could be tapped, and crops were produced without the benefit of science. Today, the situation, for many reasons, is wholly different.

World demand for tropical crops is greater than ever before, but now it is much more difficult to expand output quickly. From the turn of the century until the outbreak of World War II supplies increased rapidly, at times more rapidly than demand. Expansion of production came through the opening of new plantations with imported labor, in sparsely settled areas, and from peasants taking up the growing of commercial crops for the first time either in addition to, or as a substitute for, subsistence farming. Peasant production provided most of the flexibility in world supplies.

Today, the undeveloped and remaining colonial areas of the world are largely inhabited by the same kind of peasants, still following tra-

²⁶ *Ibid.*, p. 174.

²⁷ Pim, *op. cit.*, p. 184. Still other qualifications are inserted by those who feel that guaranteed markets are of prime importance in encouraging the peasant farmer to produce.

ditional methods of subsistence farming. There are, however, relatively few who have not already been drawn into commercial agriculture. The former flexibility is largely gone: increased output must come more from higher individual productivity than from more producers. Traditional methods of cultivation are proving insufficiently adaptable to meet the requirements of Western demand. Production is tending to decline. If the future of tropical crop production actually is largely dependent upon the peasant farmer, as many believe, the development of peasant-type agriculture must proceed much more rapidly than it has in the past.

APPENDIX AND INDEX

A. APPENDIX NOTE ON PRODUCTION COSTS

Information on the costs of producing coffee, tea, and cocoa is very difficult to obtain and is generally quite unsatisfactory when obtained. Even the fragments of specific information available from time to time are of uneven quality and reliability, and are of doubtful value for comparative purposes. The best information on costs is for tea and the poorest is for cocoa, as might be expected from the structure and relative development of the two industries.

Inadequacies of cost data are nothing new. Improvements are likely to continue to be slow, and it may be many years before it is practicable to present reasonably reliable data on changes in costs and comparative costs of different producing areas.¹ Nevertheless, the importance of the subject justifies including here some available material on each of the three commodities.

The basic limitations of cost data are by no means confined to coffee, tea, and cocoa, but apply generally to agricultural products, even in the United States where records are highly developed. It remains true today that

Statistics of money costs of production are inherently untrustworthy. . . . practically no farm cost study can be found to which reasonable objections cannot be raised regarding the accuracy of the data; . . . few investigations are properly comparable with one another. . . . Variety, not uniformity, is characteristic of farm costs of production. Consequently average costs are not to be accepted as representative. . . .²

The problem of compiling cost data for tree crops is much more difficult than it is for annuals.

COFFEE

During the life of the Inter-American Coffee Agreement, various proposals were advanced for obtaining information on production costs, but nothing came of them. The closest approach was in 1944, when signatory countries were asked to supply information on changes in the cost of producing coffee since 1941. This was for the purpose of supporting their plea for raising price ceilings. Although the special committee which submitted a memorandum to the OPA considered their information "quite accurate and representative of actual conditions," it was in fact of little value.³

In the past most of the data on costs of producing coffee have been suspect,

¹ At best one may gain from available data some idea of how total costs are made up, i.e., the relative importance of different items. This is useful in studying the characteristics of an industry, but that is only an incidental purpose of the present volume. Details have been included for tea, however, because they were considered sufficiently reliable and revealing to justify the space required.

² M. K. Bennett, *Farm Cost Studies in the United States* (Food Research Institute, Stanford University, Calif., 1928), pp. 260-61.

³ Results of the survey showed the following percentage increases between 1941 and 1944 in "the most important items affecting the cost of production": wages, 75; machinery, implements, and tools, 80; transportation and packing, 90; and vehicles, 100 percent. Inter-American Coffee Board, *Fourth Annual Report, 1944-45*, p. 51.

because they were used to justify high, or higher, coffee prices. There is ample reason to believe that such production cost data as are available today are probably too high, for the same reason. Nevertheless, it is clear that costs have risen since the war. By how much is almost impossible to judge. Despite forces operating toward higher costs in the late 1930's, practically all available evidence indicates that they were actually lower than in the late 1920's.⁴ This seems to have been especially true in Brazil. But during the late 1940's the cost of producing coffee was much higher than in the immediate prewar period of low coffee prices.⁵

Reliable information on over-all production costs for any representative producing area is practically nonexistent.⁶ When such information has been available, it has been based upon some type of sampling that seldom can be depended upon as representative. Definitions of *total* costs of production, if any, are hazy. Under the heading "production costs" one may find costs figured as on the farm or plantation, as delivered to the mill ready for hulling and separating, as at the warehouse in the port of shipment, or on board ship. Such items as depreciation on trees, machinery and equipment, interest on investment, and even taxes and duties are included or excluded or figured at varying rates. Furthermore, in Brazil

a common practice followed by representatives of coffee-lobbying groups is to charge against coffee all items bought for the farm. In arriving at wage costs, to charge against gross income, members of these pressure groups frequently use the highest wage scale reported in the area rather than wages actually paid on their own farms.⁷

Uncertainty of yields and their high variability from year to year tend to affect growers' profits in an exaggerated fashion. Poor yields raise unit costs of production, while high yields tend to lower them. Because fixed costs on almost all types of plantations average over 75 percent of total costs, excluding interest charges, the proportion that varies with the size of the crop is relatively small. The largest single item in total costs is for wages for the care of the trees, whether they yield a large or a small crop.

On this basis of 75 per cent. of the total costs fixed, it follows that if the aggregate costs of a normal crop are taken as 100, the aggregate costs of producing a crop *twice* as large as that normal crop will only be 125, while the aggregate costs of producing a crop *half* as large as the normal crop will be as much as 87½. Conversely, if the

⁴ See discussion in Wickizer, *World Coffee Economy*, pp. 97-100.

⁵ Despite the high proportion of fixed costs in coffee production, over a period of years over-all costs tend to become adjusted to the level of green-coffee prices. Lower green-coffee prices bring lower costs just as a high price level encourages higher costs, because more is spent on improvements that step up yields in order to bring more profit from higher prices. This tendency for the price level to influence production costs ordinarily receives far less attention than the part that production costs play in establishing the longer-term price level.

⁶ In reviewing the author's earlier study on coffee (*American Economic Review*, June 1944, XXIV, 406), J. S. Duncan rightly questioned the "conclusiveness" of the cost data there presented. He stated, "I had occasion, on a trip to Brazil in 1942, to seek data on the cost of production of coffee . . . The samples which I was able to find represented such a small percentage of the total number of plantations, and the number of producers is so large and their geographic distribution so extensive, that I regarded with extreme reserve the figures which I gathered."

⁷ Observations of a United States government official familiar with such matters. Another factor in Brazilian costs, at least in the past, is the amount of interplanting. The cost of growing the rice, beans, corn, cotton, or whatever is interplanted, was usually charged to the cost of producing coffee.

cost per bag of the normal be taken as 100, the cost per bag of the bumper crop twice as large will be 62½, while the cost per bag of the smaller crop will be 175.⁸

In view of varying conditions of production at any given time, not only between coffee-growing countries but within the different districts of each country and between estates of different size and with trees of different ages, estimates of average costs of production are bound to be of very little value.⁹

Data obtained from farmers in São Paulo,¹⁰ who owned nearly 5 million trees, showed that between 1938 and 1945 labor costs increased 43 percent and freight and sales expense 83 percent. Wages for contract coffee workers (for clearing new land, planting trees, and caring for them for four years), however, were up some 122 percent. One farm, considered typical of a certain district, reported an extreme range in costs per bag from Cr.\$14.72 to Cr.\$308.32 during the years 1938/39 to 1943/44, but perhaps Cr.\$30 to Cr.\$60 was a more representative range.

Smaller yields have been largely responsible for the substantial increase in coffee production costs in Brazil.¹¹ Since cultural practices have shown no improvement, the time required to maintain a unit of trees remains the same as for decades past. As yields have declined, picking and drying time have been reduced, but the major item of labor cost (almost 75 percent) is hoeing, and this expense is incurred regardless of the size of the harvest.¹²

For many decades Brazil was considered the low-cost coffee-producing country of the world, but its former advantages are definitely less pronounced today. Among the mild-producing countries, many observers consider the industry of El Salvador as being perhaps the most advanced and efficient.

In El Salvador total costs of producing coffee and loading it aboard ship for export were estimated in 1948 by the *Compañía Salvadoreña de Café* at about 12 cents per pound; in 1949 the same organization placed the figure at approximately 18–20 cents.¹³ But these estimates contrast sharply with government actions in the interests of coffee growers that imply much lower costs of production. The official organ of the National Coffee Association quoted an interesting communication "from one of our friends in San Salvador" in part as follows:

The coffee export tax . . . will take effect on November 1 [1950] . . . An interesting observation may be drawn from Article 12 of the decree . . . if the price offered for Salvadoran coffee (in the United States) ever drops to \$16.00 or less per quintal

⁸ J. W. F. Rowe, *Studies in the Artificial Control of Raw Material . . . Brazilian Coffee* (London and Cambridge Economic Services, London, 1932), p. 41.

⁹ Various estimates of average production costs in Brazil in 1947 ranged between 11 and 13 cents per pound on the plantation. Costs of shipping to Santos, taxes, handling charges, and expenses of exporting added another 4 cents. But the bases for these estimates were so vague ("according to information at our disposal," etc.) that citations seem superfluous. One can gain not the slightest idea of the meaning of "average."

¹⁰ Presumably by accredited United States government officials. Reported in a publication freely available but classified as "restricted."

¹¹ Sample studies in São Paulo suggest that between the 1920's and the mid-1940's the average yield per 1,000 trees declined from about 13 to 6 bags, while the average labor cost per bag increased by approximately one-third.

¹² An unpublished study by a U.S. Department of Agriculture economist, formerly stationed in São Paulo, suggests that for that state between 1927/28 and 1945/46 total labor requirements per 1,000 trees declined from 56.3 to 46.5 days, but hoeing requirements remained unchanged at 30.8 days. The same survey indicated a rise in total labor costs of about 38 percent.

¹³ NCA, *Weekly Letter*, May 21, 1948 and July 29, 1949.

fob Salvadoran port, exclusive of export tax, the President will petition the Congress to provide relief . . . including removal of the export tax. It may be argued from this that the Government is in effect saying that Salvadoran coffee currently can be produced and placed aboard ship for 40 colones (\$16.00 US) a quintal, since above that point the Government implies that there still will remain profits to be taxed. Officials of the Ministry of Economy have confirmed this observation. Despite protestations to the contrary from coffee growers, it is probable that in the past year the average cost of producing a quintal of coffee . . . milling and exporting . . . [was approximately] . . . 40.00 colones.¹⁴

This revealing communication merely adds one more warning. The figures given above work out at about 7.3 cents per pound as against 18–20 cents.

The cost of producing coffee in Guatemala, about 1947, was said to be approximately 14 cents a pound, but in Mexico it was less than 9 cents.¹⁵ Production costs in Nicaragua in 1950 were estimated to have increased about 30 percent over 1945.¹⁶ During the early 1930's Central American countries in general were thought to have total production costs of around 10–12 cents, half of which was for growing, picking, curing, and cleaning.

In East Africa it was estimated that in 1948 "a good average crop" of *arabica* coffee (672 pounds per acre) on "a well-managed estate" would cost about £60 per ton (roughly 11 cents per pound) to produce, but in 1949 the figure would be around £80.¹⁷ The higher yields generally obtained from *robusta* coffee would make for considerably lower costs, between £35 and £45 per ton in 1948 (roughly 6–8 cents per pound).

Apparently labor accounts for roughly 55 percent of total coffee production costs. Most of the labor expense is incurred in field operations, perhaps half of total production costs. Since in *Brazil* nearly three-fourths of this is for hoeing, that would amount to about 37 percent of total production costs. The other one-fourth of field labor expense is largely variable, depending upon the size of the crop. In the mild-producing countries the proportions *may be* different because harvesting methods differ. Picking and drying are the most important variable items. The minor expense for hauling also depends upon the volume of coffee handled. Such items as fertilizing and disease and pest control are variable but for different reasons.

Expenses other than labor in total coffee production costs include: bags; fertilizer; equipment repair, replacement, and depreciation; power; transportation; supplies; depreciation on trees; taxes and duties; administrative salaries; and interest on investment. These add up to about 45 percent of total costs, and many are of course also fixed in that they are necessary regardless of the size of the crop or the price obtained for it.

During the 1930's growers in Brazil were doing only the work absolutely necessary to produce a crop; hence their costs were lower than might normally be expected. Yields were still large despite neglect of the trees. In the 1940's when coffee prices were much higher and yields lower, growers again gave attention to proper maintenance work and had an incentive to use fertilizers and to replace old and dead trees in order to arrest the decline in yields or to increase aggregate output.

¹⁴ *NCA, Weekly Letter*, Nov. 10, 1950.

¹⁵ According to a study made by the National Coffee Association of Cuba, the adequacy of which is not easily appraised.

¹⁶ *Foreign Crops and Markets*, Oct. 23, 1950.

¹⁷ J. K. Matheson and E. W. Bovill (eds.), *East African Agriculture* (London, 1950), pp. 85, 89.

TEA

Conditions of tea production vary so widely from one estate or garden to another, from one growing region to another, and from one country to another that it is practically impossible to obtain a sufficient degree of comparability upon which safe generalizations might be based. At best the information assembled here can be regarded only as rough indicators of the production cost structure, its general level, and the direction of trend. A considerable part of the difficulty in obtaining data that can fairly be compared lies in the lack of uniformity of accounting procedure, explained in many cases by environmental conditions.

For example, in establishing a tea-producing unit, the factors of production vary widely in importance. Great differences are shown in the costs of opening, depending upon elevation. Productive units located on level ground are usually closer to railheads needed for the transportation of materials, equipment, and supplies in, and the shipment of the processed product out. When tea-growing sites are located in the hills or high mountains, it is commonly necessary to provide a system of internal and/or external transport (roads, ropeways, and so on).

Then there is considerable difference from one area and site to another in the availability and cost of the labor force required. Because of the varying original conditions of establishment—and consequent problems of transportation, housing, government regulations, and so on—the real costs of labor which loom so large in the total are frequently obscured by partial inclusion under headings (for accounting purposes) which give no clue as to their importance in over-all production costs. Since war days the system of issuing rice, other foodstuffs, and clothing to laborers and also to their dependents, at concession prices, has created more than normal variation in costs by districts and even among neighboring estates.

It seems unlikely that any two estates will show the same increase in costs over the past decade. This is borne out by the sampling of company results shown in Table 21. Dearness allowances and concession foodstuffs account for a large part of increased costs, and are especially important in India and Pakistan. They show up less clearly in Ceylon because of the accounting methods employed, these items being charged in the same way as wages, i.e., against items on which expended.

But there are other factors causing production costs to vary from district to district and even on neighboring estates. Yield per acre is very important. Under the British bulk-buying scheme the rewards for quality did not seem as great as those for quantity. Increases in yields from early war days have been general, but the quality producers apparently have felt less free to resort to coarse plucking than the producers of ordinary teas. Some estates could capitalize on this situation more than others.

The availability of land suitable for growing rice on each estate was, and is, another factor affecting costs of production. As rice supplies became short, and food more and more expensive, the estates with enough land to grow a substantial part of their requirements were relatively better off than those obliged to secure high-priced rice and sell it at a loss to keep the labor force stabilized.

These, and many similar factors, explain differences in production costs

among tea estates and the magnitude of changes from pre-war years. The size of the operation is always significant; costs for a few hundred acres are quite different from those for several thousand. In some areas, especially Ceylon, there has been some replacement of rubber with tea. Otherwise only small additions have been made to existing estates. But where estates have undergone any kind of rehabilitation, costs are very unlikely to be representative.¹⁸

Except for Table 22 (data on 20 selected tea companies in India, Pakistan, and Ceylon), the information that follows has been obtained from several sources, believed to be authoritative, which the author is not at liberty to cite. These fragments are not comparable, and insufficient information is at hand to permit much analysis, but they are presented because they represent actual results and are something specific upon which to base observations, whether or not they provide truly representative samples.

Tea companies were asked for information that would show a breakdown of costs of production and changes that had occurred since the outbreak of World War II. Reports that were received (through the generous co-operation of intermediaries) are summarized in those cases where there seems to be little doubt about correct interpretations.

One company, owning 17 estates situated in different parts of Assam, computed its average cost per pound of tea over the total output, *ex-estate*, at 7.3*d.* in 1938 and 20.4*d.* in 1948. The prewar cost is lower than for any of the companies shown in Table 22 and the postwar cost higher than most. No breakdown of costs was given except that "in each case, cost of labour represented approximately 60 percent of the [total] figure."

Another company owning a number of important estates in Assam reported its cost per pound breakdown as follows:

Item	1938 (<i>d.</i>)	1948 (<i>d.</i>)
Establishment	1.16	2.07
Cultivation ^a	1.32	2.89
Manufacture (incl. plucking) ^a	2.59	6.26
Buildings .....	.57	1.15
Hospitals .....	.36	1.08
Labor expenses ^b .....	.29	1.53
Loss on food and clothing ^b .....	.02 (rice only)	4.29
Shipping and sale charges .....	.81	1.71
Various—Calcutta .....	.93	1.49
Various—London	1.47	.28
Total	9.52 <i>d.</i>	22.75 <i>d.</i>

^a Includes wages of labor.

^b Represents additional concessions to the labor force.

¹⁸ Unfortunately, the author has not always been able to learn the facts. In a few years, perhaps some idea of current costs of establishing and operating a modern tea plantation may be obtained from experiences in East Africa where about the only new planting of consequence has occurred in recent years.

Costs of production tend to be lower in East Africa than in India and Ceylon. A good yield (with medium plucking) is 1,000–1,200 pounds per acre, with costs (1948) varying from 9½*d.* to 1*s.* 3*d.* per pound. Matheson and Bovill, *op. cit.*, p. 203.

Upcountry and midcountry estates in Ceylon with average production costs around 8*d.* per pound in 1938 showed costs of 19*d.* to 24*d.* in 1948. Principal items of expense were reported under broad headings (in Ceylon cents) as follows:

Item	1938		1948	
	Average	Percentage of total	Range	Percentage of total
Salaries and agency.....	4.5	10.0	7.2-10.8	6.9 to 8.2
Plant	4.4	9.8	14.3-29.2	13.8 to 22.2
Cultivation	7.2	16.0	22.4-26.8	20.4 to 21.6
Manuring	6.9	15.4	12.3	9.4 to 11.8
Plucking	10.6	23.6	25.7-30.9	23.5 to 24.7
Manufacture	11.3	25.2	21.5-22.2	16.3 to 21.3
Total	44.9	100.0	103.4-132.2	....

The breakdown for the prewar year seems reasonable for all items, but for the postwar year differences in accounting procedure may account for the wide range under the headings "Plant" and "Manufacture." If these two items are totaled the range is still substantial, but as a percentage of total costs the figures 35.1 and 38.5 are acceptable, suggesting merely that practices in allocating costs vary among estates.

A more revealing breakdown of production costs and changes in the distribution and relative importance of individual items is provided by Table 21, which is a sampling of estate results in North India, South India, and Ceylon. Except for the Ceylon company, the accounting classifications are fairly comparable, thus permitting a good illustration of the wide range in results to be expected from estates widely scattered and operating under highly diverse conditions of production. From the table it is possible to detect fairly well the impact of higher labor costs and taxes on total costs (again excepting Ceylon). The notes should be referred to in order to avoid misleading impressions. This table provides the only really detailed information that it has been possible to secure. It is offered as something specific and highly suggestive but not necessarily conclusive.

A longer view of over-all operations of selected tea companies, obtained from company reports, is provided by Table 22. Again there are obvious limitations to this type of compilation, but it holds interest for several reasons which are apparent with very little study. Changes in acreage during the period covered are not shown, since they were generally of minor importance. Crops were usually larger than prewar, and in some cases the increase was substantial, but results are highly varied. Within each country, companies are listed in descending order of unit costs for 1938 or 1938/39, in order to facilitate comparisons with postwar returns of a decade later.

TABLE 21.—TEA PRODUCTION COSTS IN INDIA AND CEYLON: PRINCIPAL ITEMS, PREWAR AND POSTWAR

Expense item	North India				South India				Ceylon					
	Darjeeling		Assam No. 1		Assam No. 2		Sylhet		Travancore Hills		Madras District			
	Average 1947 /48	Average 1936-38	Average 1947 /48	Average 1936-38	Average 1947 /48	Average 1936-38	Average 1947 /48	Average 1936-38	Average 1947 /48	Average 1936-38	Average 1947 /48	Average 1936-38		
Total (pence per pound) ..	9.54	26.27	6.68	21.29	7.66	30.18	5.81	20.77	7.09	27.42	6.87	20.46	7.85	29.60
Percentage distribution														
Estate management	14.3	7.4	10.8	6.2	10.8	5.1	10.9	5.3	11.4	4.2	13.1	4.1	8.9	3.4
Clerical and factory staff ..	5.2	4.4	5.6	3.6	6.8	4.3	5.3	3.7	6.4	4.7	5.2	4.0	4.5	3.0
Recruiting labor .....	...	...	4.2	4.2	1.1	1.9	.6	.5	3.9	1.3	3.8	1.6	.8	1.1
Dearness allowances	1.0	7.7	3.0	7.8	2.3	9.7	2.4	14.9	2.7	10.8	2.6	19.7	...	...
Concessions on food .....	...	8.7	...	12.5	...	20.2	...	13.7	.1	19.3	...	3.4	...	...
Medical facilities	1.9	1.8	4.3	2.9	4.4	2.7	5.8	2.6	2.9	1.3	4.2	1.8	3.2	2.3
Building upkeep	5.0	2.1	6.1	2.3	4.3	5.4	7.1	2.9	3.1	1.5	3.2	3.4	4.0	3.2
Machinery upkeep ^b	2.6	1.5	2.4	2.3	3.2	1.2	2.1	1.4	1.4	.7	2.7	1.3	1.6	.5
Cultivating ^c	24.1	16.9	18.0	7.8	21.2	10.2	22.2	9.2	14.3	8.6	13.1	8.3	30.0	32.8
Plucking ^c	16.4	10.2	14.6	5.2	16.7	5.5	11.5	5.0	19.8	8.2	22.3	10.3	19.3	16.2
Manufacturing	6.1	4.9	5.9	3.7	4.7	3.0	5.4	3.8	4.6	2.0	4.6	2.2	4.4	2.6
Tea chests	8.0	7.4	7.2	6.2	7.0	7.1	8.0	6.9	10.7	7.4	9.9	10.9	5.6	4.2
Inland freight	6.7	3.2	5.8	4.4	5.9	2.4	3.3	1.6	5.2	1.4	4.4	2.1	2.1	1.4
Agency costs	2.5	3.1	1.9	2.0	2.2	1.1	2.5	1.9	2.0	1.6	1.9	2.2	4.1	1.9
Excise duty ^d .....	...	3.2	...	1.5	...	1.3	...	3.2	...	1.6	...	...	3.6	1
Export duty ^d .....	...	11.2	...	19.1	...	13.2	...	15.4	...	12.7 ^e	...	...	14.8	1
Tea cess	1.8	.5	2.5	.8	2.3	.5	2.8	.6	6.1 ^e	3.9 ^e	2.3	.2	6.8 ^f	23.7 ^f
All other ^g	4.4	5.7	7.8	7.7	7.1	5.1	10.0	7.4	5.3	8.7 ^f	6.3	6.2 ^f	4.6	3.5

^a In Ceylon dearness allowances and concessions to laborers are allocated to the relevant items.

^b Change not fully reflected because of difficulty in obtaining building materials in the postwar period.

^c Practically all wages. Labor charges are under many other headings but cultivating and plucking account for the greatest part of wages, cheap food, clothing, etc. In assessing the total labor charge, "Dearness allowances" and "Concessions on food" (above) must also be taken into account.

^d Calculated on the whole crop harvested. Variation among estates

accounted for by different percentages of tea exported and sold for internal consumption.

^e Indian export duty.

^f Duties included under heading "Tea cess."

^g Includes Travancore export duty.

^h Includes smaller items such as general stores, implements, furniture, general charges, rents, insurance, and secretarial costs, which were reported separately but are grouped here.

ⁱ Includes headquarters and department services previously spread over other items.

TABLE 22.—DATA FOR TWENTY SELECTED TEA COMPANIES THAT REPORTED THE COST OF TEA CROPS BETWEEN 1926 AND 1949*

Company and district	Area under tea (Acres)	Crops (Thousand pounds)		Average cost (Pence per pound)			Average sale price (Pence per pound)			"Profit" or difference (Pence per pound)			
		1938 or 1948 or average	1939 or 1949 or average	1926-35 average	1938/39	1948/49	1926-35 average	1938/39	1948/49				
		1938 or 1948 or average	1939 or 1949 or average	1926-35 average	1938/39	1948/49	1926-35 average	1938/39	1948/49				
India (and Pakistan)													
Darjeeling Consolidated	2,956	922	1,004	1,226	14.05	13.97	30.60	18.65	18.08	34.19	4.60	4.11	3.59
Budha Beta (Assam) ..	3,539	2,519	2,949	3,672	15.08	13.93	20.40	19.88	16.68	28.09	4.80	2.75	7.69
Pabbolan (Assam) ...	2,174	1,919	2,207	1,918	12.76	13.08	17.87	16.39	16.25	25.23	3.63	3.17	7.36
Lehong (Darjeeling) ...	1,538	750	768	907	12.48	12.51	26.63	17.55	14.05	32.68	5.07	1.54	6.05
Deamoolie (Assam) ..	1,334	1,083	1,112	1,328	12.56	12.46	27.02	16.00	16.52	29.02	3.44	4.06	2.00
Assam Frontier													
(Assam)	9,470	5,679	6,297	7,478	13.57	11.45	19.96	15.21	13.77	27.76	1.64	2.32	7.80
Limbuguri (Assam) ..	615	546	545	654	12.63	11.13	27.21	17.06	15.45	28.40	4.43	4.32	1.19
Jetinga Valley (Cachar)	1,749	1,002	1,123	1,696	10.77	10.45	20.41	12.26	12.31	24.45	1.49	1.86	4.04
Jhanzie (Assam)	5,839	3,875	3,715	5,108	11.42	10.41	18.61	14.63	13.02	24.75	3.21	2.61	6.14
Jokai (Assam)	12,230	9,124	9,414	13,576	11.88	10.24	19.02	14.64	13.24	25.44	2.76	3.00	6.42
Singlo (Assam & Dooars)	6,053	3,625	3,999	4,474	9.91	9.12	16.63	12.45	12.60	22.23	2.54	2.48	5.60
British Indian													
(Assam & Cachar) ..	1,230	1,417	1,369	1,337	10.09	9.08	16.48	12.67	11.62	23.92	2.58	2.54	6.44
Dooars	8,171	4,399	4,903	5,928	9.79	8.88	17.92	12.71	11.97	22.06	2.92	3.09	4.14
Brahmaputra (Assam)	4,641	2,612	2,928	3,261	11.10	8.83	17.18	14.14	11.74	23.69	3.04	2.91	6.51
Pathani (Sylhet)	1,988	1,011	1,009	1,228	8.64	8.10	17.61	10.11	10.83	21.65	1.47	2.73	4.04
Lungla (Pakistan—Sylhet)	4,277	2,455	2,652	3,005	9.40	8.01	19.32	10.63	12.29	21.72	1.23	4.28	2.40
Ceylon*													
Consolidated Estates ..	5,834	2,359	2,234	3,244	10.17	9.90*	19.45	14.01	12.39*	26.60	3.84	2.49	7.15
Imperial Ceylon	1,760	1,008	1,154*	1,315	9.82	9.53	20.32	13.58	13.36	26.70	3.76	3.83	6.38
Eastern Produce	10,590	6,115	5,211*	5,609	10.47	9.00	24.23	14.18	14.00	28.46	3.71	5.00	4.23
Lunava	10,869	4,697	6,209*	7,869	9.89	8.18	20.54	14.31	14.26	28.49	4.42	6.08	7.95

* Data compiled from De Zoete and Gorton, *Capital and Particulars of Tea and Coffee Producing Companies, 1936* (London); *ibid.*, *Price Yields and Crop Statistics of the Principal Tea Companies, July 1949; Tea & Rubber Mail, Aug. 1, 1940 and 1949* issues.

† All Ceylon companies are classed as "mixed" producers; i.e., in addition to tea, they operate rubber or coconut plantations, or both.

* For fiscal year 1937/38.

† Crop of 1939. Includes bought tea.

COCOA

Representative costs of producing cocoa should logically relate to the major producing area of the world, yet in West Africa the primitive conditions of production render any estimates almost worthless. Except for investigations on the labor involved in cocoa growing, attempts have apparently not been made to deal with concepts of costs which, in any event, are relatively new to West African farmers.¹⁹ Prices received by growers for their produce in the past, and even in recent years of high prices, have meaning only as they are related to living costs. These are made up largely of the cost of locally produced food and imported trade goods such as cotton textiles.

West Africa has long been the low-cost cocoa producer of the world, just as Brazil was for many decades the low-cost coffee producer. The advantage came from cheap labor—for a long time family labor upon which no monetary value could be placed. Although hired labor, paid in cash or kind, is fairly common today, competition for this labor is relatively limited. When it is effective it is usually at a time when other export crops are in demand and world prices are high. The whole economy of a producing area may then shift to a new base, only to adjust itself again when world demand falls.

An examination of the prices paid West African producers of cocoa over many years suggests a wide range in rewards, but these have no special bearing on costs. Growers either have or do not have an incentive to produce under the price relationship prevailing at any given time. Most discussion of world cocoa prices *vs.* producers' prices is couched in terms of the highly variable spread between the two, the living standards of farmers, and the importance of cocoa exports to the farming community and to state revenues.²⁰ But one may obtain very little idea of the prices, in terms of the costs of producing cocoa, that are necessary or desirable for a healthy industry.

Cocoa farmers generally have never been politically situated to "justify" world prices in terms of the costs of production and growers' returns, as with coffee and tea. Wartime price ceilings, war and postwar bulk-buying contracts, and similar conditions of trading imposed by consuming countries had their repercussions in cocoa-producing countries; but the reactions were different and more primitive. Without trade goods to buy, the price of cocoa was not of vital interest. Unlike producers of coffee and tea, with their generally more advanced living needs, the West African farmer felt no compulsion to deliver a crop in the absence of incentives. He could merely close up shop.

¹⁹ Investigations in the Gold Coast and Nigeria provide some basis for estimating the rewards of the farmers' efforts under fluctuating producers' prices for cocoa. But the large labor element in total production costs is highly variable, the annual requirement for maintenance, harvesting, and preparation for market being estimated at from 20 to 120 man-days per acre, with perhaps 80 as typical. Some "tentative generalizations" for Nigeria, based on a number of sample studies (mostly 1938), placed the figure "between 80 and 115 man-days per acre, or, at 5 acres to the ton, 400-575 man-days per ton of cocoa." The labor cost for establishing a cocoa farm (amortized over a 15-to-20-year bearing period) was estimated at "between 30 and 68 man-days per ton. The overhead labour costs (excluding transport, etc.) are therefore small relative to the prime costs and the total labour costs will lie between 430 and 643 man-days." The cost of land and equipment and entrepreneurial rewards were ignored in the calculations. Forde and Scott, *The Native Economies of Nigeria*, pp. 95-98, 112-18.

²⁰ More recently the profits of the marketing boards, the disposition of these profits, the adequacy of reserves for maintaining growers' incomes when world cocoa prices fall, and the cost of rehabilitation or checking the spread of diseases have been scrutinized.

Under these conditions it is not surprising that little useful information is available on "typical" costs of producing cocoa and none on changes over a period of time. On the other hand, where the plantation system of production is employed, some records are kept, hired labor is used, and the extent of operations requires some kind of an administrative staff; it is sometimes possible to secure "rough estimates" of costs as of a certain time.

In the Western Hemisphere, where plantations of varying size characterize the industry, one gains a rough impression that the over-all cost of producing cocoa in the late 1940's was somewhere around 4-6 cents a pound. The range was undoubtedly wide, and the producers of fine cocoas may have had higher costs. But there is no particular reason to believe that production costs have increased appreciably since the peak of world cocoa prices in 1947; in fact they may have declined.

In Bahia the attitude toward cocoa has been that once a plantation is really established the expense of maintaining it is so small as to cease to be a factor. Abandoned for years it continues to exist and produce. Since its natural habitat is the underbrush of the tropical jungle, it is competent to maintain itself under these conditions without the interference of man. This applies particularly to southeastern Bahia where unusual climate and soil conditions relieve the planter of any problem whatsoever so long as there is a world demand for cacao.²¹

Schwarz reported in 1947 that "it costs the farmer about 4 cents to produce and move 1 pound of cocoa to an evacuation port" in Bahia, and the estimated cost of production in Espirito Santo, where the industry is relatively new, was "roughly" 3 cents per pound of dry cocoa.²²

The Dominican Republic is second only to Brazil in the volume of exports from the Western Hemisphere. Cocoa is grown by small farmers in a primitive manner, but their holdings are commonly referred to as plantations. The industry is subject to a considerable degree of government control. Schwarz reported in 1947 that local estimates placed the costs of producing Sánchez cocoa on well-established plantations between approximately 3.2 and 4.5 cents per pound.²³ It is not clear whether or not these figures include transportation to ports of shipment, but both road and rail rates are reported as "reasonable."

Although cocoa has long been grown under the plantation system, yet information on production costs in Ecuador is also meager. According to one authority, costs in 1949 varied from about 3.7 to 8.1 cents per pound of dry cocoa, the wide range being accounted for by such factors as the area of the hacienda, number of employees, wages, productive rate of trees, distance of trees to drying platforms, drying time, and cost of weeding.²⁴

In the late 1940's it was thought that cocoa could be produced profitably

²¹ *Campanhia Energia Electrica da Bahia, "The Cacao Industry of Bahia," in Bahia, Brazil; A Portfolio* (Bahia, n.d.), p. 19.

²² *Documentary Material on Cocoa*, I, 29, 42. Schwarz gives an estimated cost of establishing a plantation in Brazil (Bahia, 1947) at roughly \$70 per acre (p. 26). The cost of land was insignificant in the breakdown of costs, clearing and planting accounting for more than three-fifths of establishment costs. Plantation labor was reported as fairly efficient but in short supply, and wages were about four times the going rate a decade earlier (1937).

²³ *Ibid.*, p. 47.

²⁴ R. L. Fowler and G. H. López R., *The Cacao Industry of Ecuador* (U.S. Dept. Agr., OFAR, Foreign Agr. Rpt. 34, July 1949), p. 29.

in Central America at around 6 cents per pound, but yields would have to be considerably larger than those currently obtained. This would involve the planting of new higher-yielding stock which could, at the same time, be of a type resistant to the diseases common in the area. One calculation for Costa Rica indicated that with cocoa prices as low as 7.5 cents a pound, growing would be profitable if yields averaged 4,000 pounds per acre. A gross return of \$300 an acre would be "a figure sufficiently high to permit cultivation by commercial enterprise on a scale and standard comparable to the production of bananas."²⁵ Higher yields are considered feasible and would of course reduce unit harvesting and processing costs.

²⁵ Vance Rogers, *Abaca, Cacao and the African Oil Palm . . . in Costa Rica* (Institute of Inter-American Affairs, Food Supply Division, March 1947). According to United Fruit Company standards, annual cultivation cost would be around \$65 per acre, harvesting \$168 (4.2¢ per lb.), and processing \$31 (0.78¢ per lb.), leaving "a difference of about \$50 per acre for profit, overhead, transportation, etc." Wages are higher in Costa Rica than in West Africa, but better yields obtained by scientific farming are counted upon to produce competitive unit costs.

B. APPENDIX TABLES

ABBREVIATIONS AND SYMBOLS

...	Data not available
FAO	Food and Agriculture Organization of the United Nations
IIA	International Institute of Agriculture
ITC	International Tea Committee
USDA	United States Department of Agriculture

TABLE I.—COFFEE: EXPORTABLE PRODUCTION OF PRINCIPAL PRODUCING COUNTRIES, 1930/31 TO 1950/51*
(Thousand bags of 60 kg.)

Area	Five-year averages					Crop years					
	1930/31	1935/36	1940/41	1945/46	1950/51	1945/46	1946/47	1947/48	1948/49	1949/50	1950/51
	to 1934/35 ^b	to 1939/40	to 1944/45 ^b	to 1949/50	to 1954/55						
World total	33,110	35,017	25,108	28,000	24,252	28,541	27,630	30,485	29,085	28,445	
South America	26,828	27,002	18,948	20,341	17,986	20,743	20,157	22,160	20,660	19,465	
Brazil	22,523	21,740 ^c	13,260	14,096	12,200	14,018	13,572	15,740 ^d	14,950 ^e	13,600 ^f	
Colombia	3,300	4,202	4,936	5,556	5,051	6,040	5,840	5,600	5,250	5,200	
Venezuela	796	740	532	470	500	550	530	500	270	300	
Ecuador	167	223	173	199	185	120	200	310	180	350	
Other	42	97	47	50	50	15	15	10	10	15	
Middle America	3,234	4,000	3,443	3,745	3,110	3,571	3,633	4,150	4,260	4,235	
El Salvador	835	1,011	928	1,021	748	978	1,005	1,225	1,150	1,100	
Guatemala	668	922	848	898	812	900	850	980	950	1,000	
Mexico	527	609	516	587	550	525	485	725	650	765	
Haiti	481	438	371	421	400	400	375	485	445	440	
Costa Rica	326	330	358	307	205	313	410	275	330	275	
Nicaragua	236	253	186	211	180	180	240	110	345	230	
Dominican Republic	136	222	197	190	105	193	190	235	225	250	
Other	25	215	39	110	110	82	78	115	175	165	
Africa	1,437	2,315	2,591	3,583	2,993	3,837	3,465	3,815	3,805	4,295	
British East Africa	542	775	702	793	740	775	803	880	765	930	
Madagascar	233	437	360	354	317	392	177	400	485	420	
Ivory Coast	40	207	452	767	607	884	640	895 ^g	810 ^h	820 ⁱ	
Belgian Congo	142	300	422	491	400	496	525	510	525	540	
Angola	183	273	317	629	526	783	725	570	540	840	
Ethiopia	280	263	210 ^j	292	257	230	335	270	350	400	
Other	17	60	128	257	146	257	290	290	330	345	
Asia and Oceania	1,611	1,700	126	371 ^k	...	390	375	360	360	450	
Indonesia (N.E.I.)	1,388	1,356	...	159 ^l	...	205	205	135	90	175	
Other	223	344	126	203	163	185	170	225	270	275	

* USDA, *Foreign Crops and Markets* (Nov. 3, 1947, Nov. 15, 1948, Nov. 21, 1949, Nov. 20, 1950) and *Agricultural Statistics* (1947, 1948, 1949).

^a Exports except for Brazil and Colombia.

^b Totals, Continental subtotals, and "other" (particularly Asia) somewhat less complete than for remaining periods.

^c Preliminary for 1949/50; forecast for 1950/51.

^d Adjusted series of USDA.

^e Two-year average.

^f Four-year average.

^g Four-year average.

TABLE II.—COFFEE: WORLD NET EXPORTS BY CHIEF EXPORTERS, 1930-49*
(Thousand bags of 60 kg.)

Area	Five-year averages					Calendar years									
	1930-34	1935-39	1940-44	1945-49		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
World total ^a	25,547	27,748	22,182	30,462	23,317	21,084	18,062	15,732	19,778	22,850	23,966	25,350	28,608	32,297	34,737
Latin America	22,640	23,875	19,405	26,327	20,175	18,178	15,732	15,732	19,778	22,850	23,966	25,350	24,483	27,667	30,167
South America	19,128	20,073	15,943	22,590	17,255	14,985	12,317	16,068	19,088	20,019	22,017	20,883	20,883	24,000	26,000
Brazil	14,936	15,050	10,809	16,280	12,046	11,052	7,280	10,112	13,556	14,188	15,522	14,830	14,830	17,192	19,368
Argentina	3,161	3,954	4,367	5,430	4,443	2,911	4,309	5,251	4,923	5,150	5,062	5,338	5,338	5,588	5,410 ^b
Venezuela	774	734	527	524	479	741	561	481	331	470	673	513	513	598	567
Ecuador	157	223	198	195	243	197	102	206	211	178	127	173	173	325	172
Other	100	112	41	...	44	81	32	15	51	63	33	29	0	...	...
Middle America	3,512	3,802	3,462	3,737	3,220	3,193	3,415	3,710	3,772	3,917	3,333	3,600	3,600	3,667	4,167
El Salvador	963	922	903	1,011	942	696	883	940	1,052	962	803	1,043	1,043	1,005	1,243
Guatemala	742	772	807	867	692	724	936	830	855	855	828	930	930	808	913
Mexico	524	599	463	608	429	456	864	572	595	595	555	548	548	523	817
Haiti	532	447	353	444	270	377	302	431	385	500	413	373	373	382	553
Dominican Republic	126	187	158	210	143	202	130	176	137	295	173	152	152	192	240
Costa Rica	373	391	346	320	312	358	344	404	313	363	262	305	305	392	277
Nicaragua	225	264	219	185	255	211	212	200	218	203	197	168	168	242	113
Honduras	27	27	28	51	23	15	37	33	31	45	63	32	32	53	63
Other	100	193	165	...	154	154	205	124	186	99	99	99	99	70	...
Africa	1,335	2,251	2,406	3,958	2,050	2,402	2,060	2,610	2,908	3,327	3,710	3,938	4,483	4,833	4,333
French West Africa	22	183	379	799	284	484	333	384	408	653	607	735	938	1,062	1,062
Angola	189	281	324	730	263	326	326	399	396	515	738	733	890	773	773
British East Africa	489	748	681	694	656	775	699	639	636	617	708	542	888	888	717 ^b
Belgian Congo	102	283	294	458	218	304	328	373	248	405	447	407	508	523	508
Madagascar	203	455	338	413	336	372	19	206	756	448	372	488	332	427	427
Ethiopia	277	143	42	254	5	0	105	105	99	167	263	215	297	297	297
French Cameroons	5	52	82	112	71	22	110	143	85	112	98	93	122	137	137
Other	48	106	266	...	217	229	245	361	280	410	477	695	508	...	...
Asia and Oceania	1,572	1,624	370	167	792	503	270	155	132	100	217	153	130	237	237
Indonesia (N.E.I.)	1,302	1,356	268	...	660	363	150	83	83	...	...	...	5	38	87
Other	270	268	...	...	132	...	...	...	...	...	...	...	148	92	150

* Data through 1944 from successive issues of IIA, *International Yearbook of Agricultural Statistics* and special study (No. 9) *The World's Coffee, 1945 and 1946* from FAO, *Yearbook 1948*, Vol. II; thereafter from FAO, *Monthly Bulletin*, November 1950. For 1945 and following, gross exports adjusted for known imports of Malaya, Aden, Kenya, and Uganda.

^a Totals and subtotals do not always equal the sums of the constituent items owing to the rounding of figures and (during war years) the absence or uncertainty of data for a few countries.

^b Data from G. C. Paton & Co., *Coffee Intelligence*, Apr. 27, 1950.

TABLE III.—COFFEE: NET IMPORTS INTO PRINCIPAL WORLD MARKETS, 1930-49*
(Thousand bags of 60 kg.)

Area	Five-year averages					Calendar years									
	1930-34	1935-39	1940-44	1945-49		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
World total ^a	25,124	27,625	21,660	29,907	24,375	21,620	17,163	20,667	24,475	26,900	20,540	29,660	28,608	31,297	33,070
United States ^b	11,891	13,873	16,366	20,605	15,502	17,032	12,961	16,629	19,707	20,540	20,628	18,853	20,945	22,060	
Europe	11,285	11,455	2,634	5,990	6,425	1,840	1,760	1,575	1,572	3,400	5,500	6,550	7,000	7,500	
United Kingdom	299	273	546	732	938	104	375	676	636	717	563	750	887	745	
France	3,108	3,036	692	1,159	2,298	605	418	132	6	773	1,108	1,272	1,185	1,458	
Germany, Austria	2,520	2,742	191	...	382	316	208	24	24	17	...	...	175°	439°	
Czechoslovakia	214	186	2	58	11	0	0	0	0	0	47	108	83	27	25*
Belgium, Luxembourg	802	844	92	1,190	458	2	2	0	0	447	1,047	1,520	1,427	1,507	
Netherlands	639	618	55	293	198	54	2	2	2	17	50	305	355	352	402
Sweden	754	837	321	642	666	290	132	179	336	458	820	778	577	577	
Denmark	450	511	29	194	146	1	0	0	0	68	217	213	205	268	
Finland	275	375	69	101	231	107	4	2	2	0	63	90	163	188	
Norway	277	311	42	231	179	33	0	0	0	133	265	188	292	277	
Italy	695	568	59	452	274	8	3	0	8	33	263	487	678	800	
Spain	400	397*	195	204	102	134	234	216	290	178	175	275	275	117	
Switzerland	247	289	165	305	236	96	173	208	114	240	308	248	422	305	
Other	585	865†	177	...	306	90	211	136	141	236	...	...	...	335	...
Other countries	1,948	2,297	2,660	3,312	2,448	2,748	2,442	2,463	3,196	2,960	3,532	3,205	3,352	3,510	
Canada	243	301	448	569	312	417	339	447	727	413	640	388	662	742	
Argentina	359	401	482	538	422	574	380	448	584	508	588	580	705 ^d	308 ^d	
Algeria	225	244	144	213	258	108	94	33	228	215	233	247	240	132	
Union of South Africa	212	253	403	...	254	401	426	396	536	507	397	...	401 ^e	371 ^e	
Egypt and Sudan	133	128	148	349	117	130	132	174	185	413	365	317	368	282	
Malaya	58	101	83	141	130	162	70	25	28	28	148	132	230	168	
All other	718	869	952	...	955	956	1,001	940	908	876	1,161	...	...	...

* Data through 1944 from successive issues of IIA, *International Yearbook of Agricultural Statistics*; 1945 from FAO, *Yearbook 1948*, Vol. II; thereafter from FAO, *Monthly Bulletin*, November 1950. For 1945 and following, gross imports adjusted for known exports of United Kingdom, Malaya, Aden, Kenya, and Uganda.

^a Excluding U.S.S.R.

^b Including foreign trade of territories except Hawaii.

^c Biscote of Germany, and Austria.

^d Data from Pan American Coffee Bureau, *Coffee Statistics* (Release No. 13).

^e Data for 1935 only.

† Including approximation for Spain.

TABLE IV.—COFFEE: FACTORS IN THE WORLD COFFEE SITUATION, 1930-50*
(Million bags of 60 kg., except as otherwise indicated)

Year ^a	Exportable production				"Con- sumption" (world net imports)	Stocks ^b			Coffee de- stroyed in Brazil	Prices (U.S. cents per lb.)		U.S. cents per cru- zeiro		
	World	Brazil		Other coun- tries		In- terior Brazil	Port. float, etc. ^c	Other visible ^d		Wholesale Santos No. 4	Retail roasted (U.S.)			
		Total	Sao Paulo										Other states	
1930-34 Average	32.7	24.0	16.5	7.5	25.1	29.6	23.3	6.3	...	8.6	10.6	13.7	31.0	8.2
1935	25.9	18.2	11.7	6.5	26.7	25.9	18.5	7.4	...	1.7	8.9	10.3	25.7	8.3
1936	30.9	20.9	13.5	7.4	26.7	29.2	21.3	7.9	...	3.7	9.5	11.3	24.3	8.6
1937	37.3	26.4	17.8	8.6	26.5	31.7	24.0	7.7	...	17.2	11.1	11.6	25.5	8.6
1938	33.5	23.5	15.9	7.6	30.1	23.3	(15.9)	7.4	...	8.0	7.8	11.0	23.2	5.8
1939	33.4	23.2	15.6	7.6	28.2	23.0	(15.0)	8.0	...	3.5	7.5	11.8	22.5	6.0
Average	32.2	22.4	14.9	7.5	27.6	26.6	18.9	7.7	...	6.8	9.0	11.2	24.2	7.5
1940	29.2	19.1	12.4	6.7	24.4	(23.5)	(17.2)	6.3	...	2.8	7.2	8.4	21.2	5.0
1941	28.6	16.5	10.2	6.3	21.6	(27.5)	(13.4)	7.5	...	3.4	11.4	15.2	23.6	5.1
1942	31.4	15.8	9.3	6.5	17.2	(28.3)	(19.7)	5.3	...	2.3	13.4	15.9	28.3	5.1
1943	28.5	13.6	8.5	5.1	14.9	...	...	6.3	...	1.3	13.4	13.9	29.9	5.1
1944	28.2	12.2	5.9	6.3	16.0	...	...	10.5	...	0.1	13.4	15.9	30.1	5.1
Average	29.2	15.4	9.3	6.1	13.8	...	...	7.2	...	2.0	11.8	14.3	26.6	5.1
1945	23.3	8.3	3.9	4.4	26.9	27.6	15.6	8.2	3.8	None	13.4	15.9	30.5	5.2
1946	25.2	12.7	6.5	6.1	29.7	(24.7)	(13.3)	7.5	3.9	re-	18.5	21.7	34.4	5.3
1947	27.1	14.0	8.9	5.1	13.1	28.6	12.0	6.8	4.1	ported	26.4	29.7	46.9	5.4
1948	27.8	13.6	8.3	5.3	31.3	(19.8)	(8.5)	...	...	after	26.8	32.5	51.4	5.4
1949	30.9	16.9	11.3	5.6	14.0	(16.6)	(6.2)	(6.5)	...	July	31.8	37.3	55.4	5.4
Average	26.9	13.1	7.8	5.3	13.8	22.3	11.1	7.2	3.9	1944	23.4	27.4	43.7	5.3
1950	29.2	14.4	7.3	7.1	14.8	(15.1)	(4.6)	(7.1)	(3.4)	...	50.9	53.5	79.4	...

* Data on production and destruction from Brazil, Departamento Nacional do Café (DNC), *Boletim Estatístico*, Ano III, No. 20, August 1949, p. 735, and *Anuário Estatístico do Café*, 1943/45, p. 66-207. Production data not entirely comparable with Table I. Data on consumption from sources cited for Table III, stocks explained in note 2. Prices from U.S. Bureau of Labor Statistics, exchange rates from Federal Reserve Board ("free" rates 1940 and later which were some 10 percent below the official rate until it was abolished in 1946).

^a For production, marketing years ending in the year indicated, for all other items calendar years.
^b Estimates of uncertain quality and reliability, lacking in comparability for the period covered by the U.S. Bureau of Commerce (Text, Table 5); thereafter, as reported by the U.S. Department of Commerce (Text, Table 5); thereafter, estimates as of July 1 and are partly the author's arbitrary selections (in parentheses) from widely varying trade estimates. So-called "official" figures are not in parentheses. All information on coffee stocks should be used with the utmost reserve, for reasons discussed in the text (p. 85 ff.).

^c Before the war, warehouse stocks in United States and Europe, plus Brazilian port stocks and quantities abroad; since then stocks in other producing countries have been included.
^d United States importers and roaster stocks, available only 1941-47, 1949, and following.
^e Four-year average.

TABLE V.—TEA: PRODUCTION IN PRINCIPAL PRODUCING COUNTRIES (EXCLUDING CHINA), 1930-49*
(Million pounds)

Area	Five-year averages					Calendar years			
	1930-34	1935-39	1940-44	1945-49	1945	1946	1947	1948	1949
India and Pakistan									
North India }	336.8	348.4	422.2	491.0	431.7	490.0	{ 458.7	462.4	480.5
Pakistan }	4.4	5.7	6.6	6.7	6.4	7.2	{ 41.4	43.8	46.3
Punjab, U.P. and Bihar }	59.2	70.7	89.9	96.8	92.4	96.0	{ 6.9	6.3	6.5
South India }	237.5	231.5	274.0	291.1	276.9	282.9	{ 96.2	100.5	99.1
Ceylon }							{ 298.5	298.8	298.6
Indonesia (N.E.I.)									
Java (estates) }	108.9	105.1	53.7	...	...	...	{ 1.3	12.4	30.0
Java (natives) }	28.8	27.5	14.4	...	...	...	{ 2.0	13.7	20.2
Sumatra (estates) }	30.7	37.5	...	...	...	...	{ ...	2.4	9.7
British East Africa									
Nyasaland }	2.9	9.2	12.6	13.3	13.7	14.0	{ 13.3	14.3	11.3
Kenya }	2.4	9.5	13.9	12.0	13.0	12.3	{ 13.4	10.0	11.4
Uganda } .....	...	0.4	1.7	3.3	2.8	2.7	{ 3.9	3.8	3.4
Tanganyika } .....	...	0.4	1.1	1.4	1.3	1.5	{ 1.4	1.5	1.4
Japan }	90.4	114.5	125.5	53.4	52.1	47.2	{ 48.8	57.3	61.6
Taiwan (Formosa) }	19.1	25.2	24.0 ^b	11.5 ^b	3.0 ^c	6.0 ^c	{ 16.0 ^c	21.0 ^c	...
Malaya (estates only) }	0.2	1.0	...	1.8 ^b	...	0.4	{ 1.2	2.3	3.2
Mozambique } .....	...	1.4	2.1	...	2.8	3.2	{ 3.2	...	...
Southern Rhodesia } .....	...	0.2	0.4	0.6	0.4	0.6	{ 0.5	0.6	0.7
Union of South Africa }	0.7	0.8	0.8	0.6	0.7	0.8	{ 0.7	0.6	0.2
U.S.S.R. }	1.5	15.4	...	...	...	...	{ ...	...	...
Iran (Persia) }	0.6 ^b	1.4	5.0	...	8.0	8.5	{ 11.0	...	...
Brazil } .....	...	...	...	1.7	0.9	1.6	{ 2.1	...	1.6
Total countries listed }	924.1	1,005.8	1,047.9	...	906.1	974.9	{ 1,017.3	1,053.8	1,085.7
World estimates									
Excluding China ^d }	938.9	1,015.7	1,132.0	1,014.8 ^b	906.7	970.0	{ 1,102.3	1,080.2	...
Including China ^e }	1,645.0	1,689.0	1,507.0	1,373.0 ^b	1,263.0	1,333.0	{ 1,412.0	1,484.0	...

* Data mostly from ITC, *Monthly Bulletin of Statistics*, June issues 1948-50 and December 1950 Supplement (supplemented by IIA in a few cases). Figures in *italics* are considered incomplete, not very reliable, or both.

^b Less than 50 thousand pounds. ^c Four-year average. ^d Estimates of the IIA and FAO from their *Yearbooks*.

^e Production as given by Great Britain, Commonwealth Economic Committee, *Plantation Crops*, 1950, p. 20.

^f ITC estimates. Chinese production arbitrarily taken as exports plus 600 million pounds to 1938; exports plus 450 million for 1939 to 1941; exports plus 300 million from 1942.

TABLE VI.—TEA: EXPORTS FROM PRODUCING COUNTRIES, 1930-49*
(Million pounds)

Area	Five-year averages					Calendar years									
	1930-34	1935-39	1940-44	1945-49	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	
India ^a	348.0	332.7	382.8	399.8	352.6	401.0	334.4	372.0	454.0	379.3	299.5	424.8	348.7	487.3	
Pakistan ^b	234.9	221.6	257.9	280.9	246.4	237.5	265.7	263.9	276.2	232.0	291.8	287.3	295.8	297.6	
Indonesia (N.E.I.)	161.2	153.2	...	20.8 ^b	159.6	167.0 ^b	...	...	...	...	6.1 ^b	8.7 ^b	19.8 ^b	48.4 ^b
Nyasaland	2.9	8.8	12.2	13.7	12.8	12.3	12.4	11.0	12.5	13.7	13.8	12.9	15.1	12.8	
Kenya ^c	1.1	8.2	10.1	8.2	9.8	10.4	11.5	9.5	9.2	9.5	9.0	9.6	5.9	7.0	
Uganda ^d	4	0.1	1.1	2.1	0.5	0.8	1.4	1.1	1.4	2.0	1.3	2.4	2.3	2.3	
Tanganyika	4	0.2	0.9	1.1	0.7	0.9	1.1	1.1	0.7	0.9	1.4	1.0	1.0	1.0	
China	93.9	79.5	20.7	33.8 ^b	76.0	20.1	3.2	2.9	1.2	...	15.2	36.3	38.6	45.0	
Taiwan (Formosa) ^e	17.5	22.8	...	...	19.2	16.7	15.0	14.3	...	...	...	...	...	...
Japan	27.3	43.3	21.6	11.0	36.0	27.1	11.4	18.6	14.9	16.2	7.5	6.7	8.9	15.8	
French Indo-China	1.6	3.9	2.0	0.8	5.4	4.1	4	4	0.2	0.2	1.7	0.3	0.6	1.4	
Malaya	0.1	0.6	...	...	0.7	0.6	...	...	...	...	...	0.1	0.6	1.7
Mozambique	0.2	0.8	1.7	3.3	1.3	1.6	1.5	1.9	2.1	2.4	2.2	3.2	3.4	5.2	
Union of South Africa	0.1	0.4	0.3	...	0.6	0.6	0.2	0.1	0.1	0.1	0.1	0.1	4	...	
Southern Rhodesia	...	...	...	...	...	...	...	...	...	...	...	...	...	...
All others	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brazil/	888.9	876.2	790.2	766.0	921.8	901.2	658.2 ^b	696.8 ^b	773.1 ^b	657.0 ^b	650.6	794.4	769.9	938.0	
Total	...	...	0.4	0.9	0.2	0.3	0.4	0.3	0.5	0.6	1.0	1.1	1.2	0.6
Kind of tea	775.9	768.0	746.0	690.2 ^b	822.8	856.6	637.4	666.3	746.8	629.4	633.2	763.3	734.7	...	
Black	64.1	69.4	30.1	24.2 ^b	75.9	25.9	8.9	16.5	23.4	27.0	16.5	27.2	26.3	...	
Green	25.6	13.7	2.6	1.1 ^b	3.9	2.9	1.4	2.4	2.5	0.5	0.8	0.8	3.3	...	
Other	23.3	25.1	11.5	2.4 ^b	19.1	15.7	10.5	11.5	0.5	0.1	0.9	3.2	5.6	...	
Total	888.9	876.2	790.2	766.0	921.8	901.2	658.2 ^b	696.8 ^b	773.1 ^b	657.0 ^b	650.6	794.4	769.9	938.0	

* ITC, Monthly Bulletin of Statistics, June issues 1948-50. Figures in *italics* are estimates of the ITC.

^a Including small exports from Burma through 1936 and exports by land to Iran to June 1948.

^b Incomplete or estimated.

^c Excluding trade between Kenya and Uganda.

^d Less than 50 thousand pounds.

^e Excluding exports to Japan and Korea prior to 1946. Formosa exports included in China from 1946 on.

^f Excluding "yerba mate."

COFFEE, TEA, AND COCOA

TABLE VII.—TEA: ABSORPTION IN THE PRINCIPAL WORLD MARKETS, 1930-49*
(Million pounds)

Area	Five-year averages					Calendar years									
	1930-34	1935-39	1940-44	1945-49		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
United Kingdom	442.3	443.0	434.5	394.5	473.3	475.0	475.0	352.6	456.1	415.4	381.4	347.8	372.3	404.4	466.4
United States ^a	86.8	87.4	83.9	83.3	96.9	101.8	47.7	47.7	84.2	89.1	83.0	91.5	60.6	88.8	92.4
Australia	45.4	47.4	45.6	47.7	45.9	52.4	43.9	46.2	39.9	39.9	43.7	50.6	49.2	48.0	46.9
Canada	39.9	38.7	37.4	40.1	42.1	37.7	30.6	37.6	39.2	39.2	51.2	27.0	44.8	34.8	42.7
Egypt	12.6	15.5	12.4	22.6	14.2	14.4	15.0	6.5	6.5	11.9	9.3	10.8	27.6	29.7	35.6
Iran	11.6	16.5	12.2	14.0	16.4	4.6	20.1	3.3	3.3	16.8	3.9	10.5	16.5	16.2	23.0
French Morocco	15.6	17.5	5.2	11.5	9.8	8.3	2.2	2.1	2.1	3.6	5.3	8.8	7.4	16.1	20.1
Union of South Africa	11.9	15.2	16.8	16.8	16.5	19.7	15.6	19.9	12.3	12.9	11.9	11.9	21.6	18.4	19.5
Ireland (Eire)	23.6	22.6	11.8	18.9	23.6	11.2	11.6	6.1	6.2	7.8	16.2	25.7	26.3	18.6	18.6
U.S.S.R. ^b	46.7	34.9	14.6	10.3	26.8	8.7	6.3	20.9	10.4	0.6	0.6	2.5	16.9	14.9	16.8
Netherlands	24.7	24.6	3.3	11.9	14.1	2.5	0.1	°	°	-0.2 ^d	5.1	11.9	12.6	13.1	16.7
Iraq	4.5	6.5	5.6	10.7	7.1	5.0	6.4	6.2	3.2	3.2	5.1	3.9	14.8	13.5	16.0
New Zealand	10.8	10.8	11.3	12.1	11.7	13.0	18.2	4.7	8.7	7.8	7.8	10.7	14.2	17.3	10.5
Argentina	4.0	4.4	3.8	...	4.6	4.7	4.6	1.6	3.4	3.6	3.6	2.9	5.4	...	...
Germany	11.3	11.6	3.0	...	3.3	5.8	3.9	1.7	0.2	0.2	...	...	...	1.6	4.1
Malaya	5.6	4.5	...	...	5.6	...	...	...	...	...	...	...	3.3	3.5	3.9
Chile	3.7	4.6	3.6	...	4.1	4.0	3.0	1.9	5.2	3.5	2.8	2.8	1.7	1.7	...
Total ^c	880.1	892.6	803.5	773.0	934.0	879.7	670.3	763.9	769.6	682.0	669.9	669.9	767.8	825.6	919.7

ITC Breakdown of "Total"

U.K. and Ireland	465.6	446.2	413.4	496.9	486.2	364.2	462.3	421.7	389.2	364.0	397.9	430.7	485.0
U.S.S.R. ^b	47.1	35.2	14.6	10.3	26.8	8.7	6.3	20.9	10.4	0.6	2.5	16.9	14.9
Rest of Europe	59.6	58.4	20.5	29.0	45.4	19.4	14.0	11.2	12.6	15.0	27.4	27.5	32.5
N. America and West Indies ..	129.3	128.9	124.2	126.6	141.8	143.0	80.8	124.1	131.2	137.1	121.8	110.0	127.6
Latin America	10.4	11.7	9.6	9.0	12.4	11.3	9.4	4.7	10.4	9.2	8.4	10.2	8.9
Asia	33.8	51.7	52.3	48.7	65.5	56.3	61.7	33.4	44.6	26.1	34.2	56.4	59.0
Africa	60.4	71.7	47.7	70.9	60.9	56.4	43.8	36.3	40.9	39.2	47.9	81.3	84.5
Middle East Forces .....	...	17.0	...	4.3	12.4	15.0	19.0	34.4	13.0	...	...	...	...
Oceania	57.1	59.1	57.8	61.0	58.5	66.3	62.9	51.5	49.9	52.4	62.5	64.6	66.5
Major producing countries ^c ..	16.6	10.1	13.5	1.5	21.3	19.9	12.2	0.6	13.6	0.1	1.3	3.0	1.0
2.0	...	...	...	...	...	...	...	...	...	...	...	...	...

Approximate Consumption in Producing Countries^d

India and Pakistan	51.1	88.0	129.5	...	115.5	109.8	137.0	153.0	132.0	150.0	165.0	...	...
Burma	13.0	16.5	...	...	16.0	...	...	...	...	...	...	...	...
Ceylon .....	...	10.2	12.9	15.7 ^e	11.6	12.3	10.9	14.5	15.3	17.0	17.1	14.2	14.5
Indonesia (N.E.I.)	19.3	26.7	...	...	...	...	...	...	...	...	...	...	...
British East Africa	1.7	2.3	5.3	6.2	3.7	5.6	6.0	4.8	6.4	5.3	5.4	6.3	7.0
Southern Rhodesia .....	...	0.6	0.9	...	0.7	0.8	1.1	0.9	0.7	1.0	1.0	1.3	1.4
Japan	63.9	71.4	108.7 ^f	...	93.7	110.9	124.4	105.9	...	...	39.7	42.1	48.4
Formosa .....	...	1.0	4.3 ^g	...	1.6	4.4	5.2	6.0	...	...	...	...	...
Malaya	6.0	5.2	...	...	6.7	...	...	...	...	...	...	4.5	5.2
5.9	...	...	...	...	...	...	...	...	...	...	...	...	...

^a ITC, *Monthly Bulletin of Statistics*, June issues 1948-50. In general "absorption" refers to the net quantities of tea cleared through the customs for consumption within the country, though in a few cases it refers to the net quantities arriving there. Figures in *italics* are estimates of the ITC.

^b Net export.

^c Including territories except Hawaii.

^d From 1939 on, figures are estimated from declared exports to the U.S.S.R.

^e Excluding locally produced tea. Totals and subtotals are partly estimated.

^f Includes the "absorption" of imported tea shown above.

^g Four-year average.

^h Less than 50 thousand pounds.

TABLE VIII.—TEA: ANNUAL AVERAGE PRICES OF TEA SOLD AT AUCTIONS, 1935-50*

Year ^a	London ^b (Pence per pound)			Amsterdam (Florin-cents per half kg.)			Calcutta (Annas per pound)			Colombo (Rupee-cents per pound)				
	N. India	British East Africa Ceylon		Java	Java and Sumatra		With export rights		For internal use		High grown	Medium grown	Low grown	All tea
		12.8	14.4		10.4	12.9	Assam	Dooars	All tea	All tea				
1935	12.8	14.4	10.4	12.9	34.0	33.8	10.0	9.0	9.4	4.8	75	63	57	64
1936	13.0	14.1	11.7	13.1	39.8	39.5	10.6	9.8	10.1	4.7	76	65	61	67
1937	15.0	16.0	13.8	15.2	53.8	53.2	11.7	11.1	11.3	4.8	82	76	72	76
1938	14.2	15.3	12.4	14.4	51.2	50.8	10.0	9.2	9.6	4.0	79	70	63	70
1939	13.4	15.2	11.2	13.8	52.5	51.5	12.2	10.7	11.4	4.3	84	76	71	76
1940	Data below are approximate prices paid by the Ministry of Food. ^c													
1941	No auctions													
1942	14.5	17.0	13.5	.....	No auctions		13.6	12.7	13.5	4.1	94	80	74	81
1943	17.2	19.7	13.5	.....	after		17.2	16.0	16.8	7.3	120	108	102	109
1944	17.2	20.0	14.2	.....	Apr. 25, 1940		16.4	15.5	16.0	16.8	127	117	107	113
1945	18.2	22.5	14.2	.....	until		No auctions		9.7	No auctions				
1946	18.2	22.5	14.2	.....	December 1948		Sept. 14, 1942		10.6	after				
1947	24.0	25.5	14.2	.....	.....		until		14.3	Sept. 14, 1942				
1948	26.0	27.5	.....	.....	.....		January 1947		21.8	until				
1949	26.0	27.5	.....	.....	204.5		26.7	22.1	25.4	19.6	176	157	154	160
			.....	.....	203.0		27.3	22.3	26.3	21.6	174	152	150	155
1950	30.0	31.5	.....	.....	.....		32.0	27.2	31.1	22.7	211	186	188	193

* Data from ITC, *Bulletin of Statistics*, June 1950, pp. 50-51; and Text Table 13.

^a Average prices paid by the Ministry of Food and Calcutta averages are for season ending March 31 of following year.

^b Standard and Empire preferential rates of duty on tea imported into the United Kingdom have been as follows, in pence per pound:

Period	Main duty	Preferential rate
From April 1932	4	2
From April 1936	6	4
From April 1938	8	6
From April 1949	2	nil

^c No auctions after Aug. 24, 1939 until April 1951. Data for 1942/43 to 1946/47 are average prices as reported by the IFC. Thereafter the figures are calculated from year-to-year changes in MOF offering prices or from reported bonuses over average 1936-38 (f.o.b.) base contract price levels.

TABLE IX.—COCOA: WORLD PRODUCTION, 1929/30 TO 1949/50*
(Thousand metric tons)

Area	Five-year averages					Crop years					
	1929/30- 1933/34	1931/35- 1938/39	1939/40- 1943/44	1944/45- 1948/49	1949/50	1944/45	1945/46	1946/47	1947/48	1948/49	1949/50
	World total	588.0	731.3	644.6	666.6	617.0	639.0	632.0	651.0	720.0	755.0
Africa	376.0	484.0	407.2	437.9	414.0	415.0	406.0	415.0	492.0	506.0	
Gold Coast and Br. Togo	242.8 ^a	282.6	230.2	280.6	282.3	212.7	195.2	210.9	282.6	274.9	
Nigeria and Br. Cameroons	62.4 ^b	95.4 ^b	95.9	102.2	87.7	105.0 ^c	111.6	95.0	109.9	96.7	
Ivory Coast ^d	27.7	47.1 ^a	30.0	36.2	26.9	28.4	35.8	30.3 ^a	35.2 ^a	56.1 ^a	
Fr. Cameroons (and Eq. Africa)	14.6 ^d	25.5	25.4	39.8	38.4	36.7	35.8	46.8	37.9	49.8 ^b	
Spanish Guinea ^e	9.4	12.3	14.2	15.3	15.2	17.2	13.2	18.3	14.1	16.0	
São Tomé and Príncipe	10.9 ^b	9.9	6.7 ^d	8.3	8.1 ^d	9.1 ^d	9.1	8.2	7.3	7.7	
Others	8.2	11.2	4.8	5.5	5.4	5.9	5.3	5.5	5.0	4.8	
South America	138.0	175.0	177.5	169.6	155.0	172.0	170.0	165.0	156.0	181.0	
Brazil	91.6	124.0	132.8	121.4	110.6	129.1	121.7	119.1	96.9	128.5	
Ecuador	16.0 ^d	20.0 ^d	14.3 ^d	17.2	16.8 ^d	16.5 ^d	16.5 ^d	15.9	20.2	20.2	
Venezuela	17.0 ^d	16.5 ^d	14.3 ^d	17.8	12.6	17.2	17.2	18.1	23.8	17.9	
Colombia	8.8 ^a	10.5 ^a	16.1	13.2	15.0	{ 7.5	11.4	8.3	11.2	11.3	
Others	4.6	4.1				{ 1.7	3.2	3.6	3.9	3.1	
Middle America	65.0	63.4	52.2	52.8	42.0	46.0	50.0	64.0	64.0	60.0	
Dominican Republic	21.2 ^d	23.4 ^a	24.2	27.5	24.7	23.6	26.2	33.0	30.0	26.0	
Trinidad and Tobago	21.0 ^b	15.3 ^b	6.6 ^b	4.0	3.5	3.5	3.0	4.1	8.3	7.3	
Other Br. West Indies	7.2 ^{bd}	6.4 ^b	5.5 ^{bd}	4.5	4.3	4.2	4.6	5.1	4.8	5.9	
Costa Rica	6.7 ^d	6.8	5.6	4.0	1.0	4.6	4.3	5.4	4.3	5.5	
Mexico	.8	1.1	1.6	4.1	1.6	2.7	2.7	7.0	6.5	6.7	
Others	8.1	10.4	8.7	8.7	6.3	7.4	9.2	9.4	10.1	8.6	
Asia and Oceania	9.0	8.9	7.7	6.3	6.0	6.0	6.0	7.0	8.0	8.0	

* Data from FAO and IIA Yearbooks; FAO, Commodity Reports, Cocoa, June 26, 1950; and FAO, Monthly Bulletin of Food and Agricultural Statistics, November 1950. Because cocoa production statistics are not well developed, it has frequently been necessary to make adjustments (and some estimates) in the interests of comparability. Even then many discrepancies remain unexplained. Data are for October-September years in so far as possible.

^a Average for less than 5 years.

^b Exports.

^c Partly estimated.

^d Exports for period beginning Jan. 1 of years indicated.

^e Including Dahomey (French West Africa).

^f FAO data adjusted to avoid counting Fernando Po twice in 1945/46 and 1946/47.

TABLE X.—COCOA: GROSS EXPORTS FROM PRINCIPAL PRODUCING COUNTRIES, 1930-49*

(Thousand metric tons)

Area	Five-year averages					Calendar years									
	1930-34	1935-39	1940-44	1945-49	1949	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
Total	557.4	705.3	539.4	609.2	607.6	624.3	394.5	535.1	535.3	538.8	639.5	566.0	579.4	722.2 ^a	
Africa	367.9	483.4	354.4	426.1	416.6	413.0	253.8	333.6	355.2	391.1	431.3	380.4	420.1	508.0 ^a	
Gold Coast (and Br. Togo)	230.6	276.4	194.5	220.8	227.5	222.5	125.9	190.4	206.1	219.7	240.1	180.0	196.4	267.8 ^b	
Nigeria (and Cameroons)	64.0	98.1	83.7	102.0	91.2	106.4	60.9	88.9	71.2	78.2	101.8	112.6	108.6	108.9	
Ivory Coast (and Dahomey)	29.2	49.9	26.4	36.1	45.5	43.0	28.6	35.5	11.7	26.9	28.4	28.0	41.2	56.1	
French Cameroons	14.4	26.5	25.5	40.4	24.4	20.4	15.0	32.5	35.1	38.4	34.0	33.7	47.9	48.0 ^b	
Spanish Guinea	10.7	11.4 ^c	13.2	13.8	14.8 ^d	11.3 ^d	13.9 ^d	12.8 ^d	13.0 ^d	14.7	13.4	12.7 ^e	12.7	15.5 ^b	
São Tomé and Príncipe	11.0	10.2	6.7	8.6 ^e	7.0	5.1	4.3	5.0	12.2	8.1	10.3	8.3	8.2 ^e	...	
Other Africa ^f	8.0	11.0	4.4	4.4	6.3	4.5	5.2	3.5	2.9	5.0	3.3	5.0	5.1 ^e	3.7 ^b	
South America	120.0	155.6	134.2	135.8	133.3	160.2	97.9	148.3	131.6	113.1	163.4	131.5	105.9	164.8	
Brazil	88.1	119.7	105.7	103.4	106.8	132.9	71.9	115.1	101.9	83.4	130.5	99.0	71.7	132.2	
Ecuador	15.9	19.2	14.3	17.9	11.2	14.4	13.8	18.2	13.7	16.8	16.5	20.8	16.3	19.1	
Venezuela	16.0	16.7	14.2	14.5	15.3	12.9	12.2	15.0	16.0	12.9	16.4	11.7	17.9	13.5	
Middle America	61.3	58.1	44.1	41.4	41.4	43.8	36.2	47.8	43.1	29.3	40.3	48.4	47.6	41.4	
Dominican Republic	21.3	24.5	22.7	23.9	23.0	19.3	17.7	27.9	25.6	18.7	25.2	30.0	25.7	20.0 ^b	
Trinidad and Tobago	21.0	14.3	6.6	4.9	11.3	8.5	4.6	3.6	4.8	3.5	3.0	4.1	8.3	5.3 ^b	
Other Br. West Indies ^g	6.8	6.2	5.2	4.3	3.9	5.7	4.9	6.0	5.4	4.0	4.2	4.3	4.6	4.4 ^b	
Costa Rica	6.7	6.5	5.2	4.2	4.9	5.6	5.6	5.5	4.2	1.3	4.0	4.8	4.2	6.6	
Other Middle America ^h	5.5	6.6	4.4	4.1	5.9	4.7	3.4	4.8	3.1	1.8	3.9	5.2	4.8	4.6 ^b	
Asia and Oceania	8.2	7.9	6.7	5.8	8.8	7.1	6.6	5.4	5.4	5.2	4.5	5.7	5.8	8.0 ^b	

* Data from USDA, *Agricultural Statistics*, 1949, p. 303, and earlier issues, supplemented by *Foreign Crops and Markets*.^a Partly estimated.^b Data from FAO Commodity Reports, Cocoa, June 26 1950, p. 14, and *Monthly**Bulletin of Food and Agricultural Statistics*, November 1950, p. 17.^c Average of 3 years.^d Imports into Spain.^e Approximations from unofficial data.^f Belgian Congo, Angola, and French Togoland.^g Dominica, Jamaica, and Grenada.^h Nicaragua, Panama, Cuba, and Haiti. For Haiti, years ending September 30.

TABLE XI.—COCOA: NET IMPORTS INTO PRINCIPAL WORLD MARKETS, 1930-49*
(Thousand metric tons)

Area	Five-year averages				Calendar years									
	1930-34	1935-39	1940-44 ^a	1945-49	1940 ^a	1941 ^a	1942 ^a	1943 ^a	1944 ^a	1945	1946	1947	1948	1949
United States	194.5	269.8	264.8	271.0	330.6	314.3	108.7	260.6	309.5	281.4	269.4	271.2	247.7	285.2
United Kingdom	65.7	108.5	142.4	114.4	112.2	149.4	158.3	171.5	120.8	87.6	119.7	106.6	109.1	149.2
Continental Europe ^b	249.1	275.6	80.8	146.0	172.1	83.7	77.5	34.8	35.9	83.0	153.0	151.0	140.0	201.0
Germany	83.9	82.3	16.4	...	36.7	24.7	14.9	4.4	1.1	...	...	1.1	...	18.3 ^b
Austria	6.1	...	...	...	...	...	...	...	...	...	...	...	...	4.5
Netherlands	49.8	66.3	5.5 ^c	35.0 ^c	22.0	(4.2) ^d	(1.1) ^d	0	...	...	38.8	40.1	21.8	39.4
France	40.8	44.6	21.4	41.0	49.4	34.4	32.2	4.9	1.1	21.5	39.9	40.8	51.3	66.3
Belgium and Luxembourg ..	8.8	11.0	1.0	11.8	4.6	1	1	1	(.4) ^d	12.7	8.8	12.6	13.9	10.8
Czechoslovakia	9.1	10.8	6	...	2.7	0	0	0	0	0	4.7	8.0	5.4	...
Switzerland	7.5	8.8	7.2	9.9	10.7	3.1	7.5	5.6	9.1	6.3	14.2	9.3	11.0	8.5
Italy	7.6	8.7	3.2 ^c	6.4 ^c	11.7	8	1	0	...	...	4.7	7.6	4.6	8.6
Spain	9.7	8.2 ^c	13.4	13.0 ^c	15.8	11.3	14.0	12.8	13.0	14.7	13.4	11.8	12.1	...
Poland and Danzig	6.0	6.8	...	...	...	...	...	...	...	...	...	...	...	...
Sweden	4.3	5.7	6.0	8.2	6.9	5.2	4.4	3.7	9.9	5.2	9.7	7.8	8.2	10.1
Norway	2.2	3.4	1.0	3.2	4.6	.2	.1	0	.0	1.5	3.9	3.5	3.2	4.1
Other	14.3	18.0	...	...	...	...	...	...	...	...	...	...	...	...
Canada	8.5	12.5	19.1	20.5	15.5	25.0	19.4	14.3	21.4	23.2	27.5	15.5	17.8	18.5
Australia	4.8	6.8	11.6	11.5	10.2	12.8	7.3	15.4	12.4	16.1	8.0	12.0	9.7	11.9
Argentina	4.5	5.1	6.6	...	5.3	6.0	6.3	7.6	8.0	9.9	8.3	8.2	...	...
Union of South Africa .....	.6	1.2	6.0	...	2.3	5.4	13.4	3.8	5.2	3.5	4.3	...	...	...
All other	9.9	12.0	16.4	...	13.4	16.2	17.1	17.3	17.4	25.0	30.0	...	...	...
World ex-U.S.S.R.	537.6	691.5	547.7	600.0	661.6	612.8	408.0	525.3	530.6	530.0	620.0	587.0	557.0	708.0
U.S.S.R.	1.9	9.4 ^c	...	...	...	...	...	...	...	...	...	...	...	...

* Data from FAO and IIA Yearbooks and FAO Monthly Bulletin of Food and Agricultural Statistics, November 1950. Net imports of net importing countries through 1944, gross imports thereafter except that re-exports from the United Kingdom are deducted from their imports and from the world total through 1948.

^a Four-year average.

^b Net exports counted as zero in totals and averages.

^c Approximate.

^d Western Zone.

COFFEE, TEA, AND COCOA

TABLE XII.—COCOA: NEW YORK SPOT PRICES AND U.S. WAREHOUSE STOCKS, MONTHLY, 1936-50*

Year	Average	(Cents per pound)											
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1936	6.9	5.4	5.5	5.4	5.3	5.6	6.2	6.4	6.7	7.5	8.4	9.5	11.3
1937	8.4	12.2	10.3	11.4	9.9	7.8	7.4	7.9	8.4	7.9	6.3	5.8	5.6
1938	5.2	6.1	6.0	6.1	5.2	4.7	4.7	5.3	5.3	5.2	5.0	4.8	4.6
1939	4.8	4.4	4.6	4.7	4.5	4.4	4.4	4.3	4.4	6.1	5.4	5.2	5.9
1940	5.1	5.6	5.4	5.6	6.0	5.5	5.0	4.7	4.3	4.5	4.5	4.9	5.3
1941	7.6	5.2	5.8	7.2	7.3	8.0	8.0	7.8	7.9	8.1	8.2	8.8	9.4
1942	8.9	9.4	9.0	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
1943	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
1944	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
1945	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
1946	11.6	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	14.0	19.1	24.5
1947	35.0	25.9	26.6	28.0	28.8	28.2	30.1	32.7	34.5	40.4	49.5	51.0	43.0
1948	39.8	43.6	43.6	39.4	35.4	33.2	41.6	44.6	44.2	40.4	40.2	39.1	31.7
1949	21.5	26.6	20.3	18.5	19.9	19.0	18.7	21.1	22.6	20.0	20.5	24.6	25.9
1950	....	27.2	25.1	22.8	24.0	28.6	30.8	35.6	40.5	42.0	37.2	....	....

APPENDIX TABLES

STOCKS: New York^a

(Thousand bags of 132 pounds)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1936	761	755	771	821	776	732	706	710	705	698	690	518
1937	543	713	936	1,075	1,273	1,357	1,291	1,325	1,353	1,319	1,142	1,103
1938	594	585	581	650	675	678	676	793	963	943	910	958
1939	988	1,026	1,164	1,340	1,402	1,416	1,381	1,357	1,167	1,068	1,102	1,116
1940	1,068	1,104	1,058	1,056	1,064	1,062	1,113	1,198	1,346	1,322	1,276	1,347
1941	1,345	1,390	1,296	1,346	1,393	1,401	1,476	1,476	1,469	1,380	1,428	1,359
1942	1,337	1,286	1,087	886	795	686	583	493	394	307	231	174
1943	81	66	56	64	60	53	96	130	121	115	124	111
1944	73	41	54	68	71	64	63	53	53	57	61	81
1945	90	96	146	170	207	309	310	280	236	186	183	182
1946	159	150	175	279	339	306	304	308	301	228	177	169
1947	138	103	89	87	104	115	115	119	123	104	83	90
1948	79	68	83	48	41	45	63	75	83	60	29	50
1949	46	31	37	201	394	420	437	428	326	259	222	308
1950	228	163	...	...	...	...	...	...	...	...	...	...

* Prices for beans, f.o.b. New York from U.S. Bureau of Labor Statistics, *Wholesale Prices*; stocks in New York warehouses at the end of the month from Commodity Research Bureau, *Commodity Year Book*, 1950, p. 70.
^a In licensed and unlicensed warehouses of storage companies licensed by the New York Cocoa Exchange.

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