Birla Central Library
PILANI (Jaipur State)
Class No :- 170
Book No :- D492G
Accession No :- 10666

PSYCHE MONOGRAPHS

No. 2

THE GUIDANCE OF CONDUCT

PSYCHE MINIATURES

Under the Editorship of *Psyche* are being issued a number of short studies in two series: a Medical Series on subjects which have also a psychological interest; and a General Series.

These are convenient pocket volumes, clear, comprehensive, and comely, priced at half-a-crown each.

The titles already published or in preparation are as follows:

MEDICAL SERIES

MIGRAINE,	F. G. Crookshank, M.D., F.R.C.P.
APHASIA,	S. A. Kinnier Wilson, M.D., F.R.C.P.
RHEUMATIC DISEASES,	M. B. Ray, *D.S.O.*, M.D.
TYPES OF MIND AND BODY,	E. Miller, M.B., M.R.C.S., D.P.M.
DERMATOLOGICAL NEUROSES,	W. J. O'Donovan, *C.B.E.*, M.D.
DIAGNOSIS,	F. G. Crookshank, M.D., F.R.C.P.
MEDICINE: AND THE MAN,	Millais Culpin, M.D., F.R.C.S.
IDIOSYNCRASIES,	Sir Humphry Rolleston, Bt., K.C.B., F.R.C.P.
THE CONSTITUTIONAL FACTOR,	Arthur F. Hurst, M.D., F.R.C.P.
THE TROUBLED CONSCIENCE,	Professor C. Blondel
MIRROR-WRITING	Macdonald Critchley, M.D., M.R.C.P.

Amongst those who hope to contribute to the Medical Series are Lord Dawson of Penn, Dr Herbert French and Dr W. Langdon Brown.

GENERAL SERIES

SCIENCE AND POETRY,	I. A. Richards
OVER-POPULATION,	P. Sargant Florence
MAN NOT A MACHINE,	Eugenio Rignano
THE HUNTER IN OUR MIDST,	R. Lowe Thompson
FEE, FI, FO, FUM,	H. J. Massingham
MYTH IN PRIMITIVE PSYCHOLOGY,	B. Malinowski
THE FATHER IN PRIMITIVE PSYCHOLOGY,	B. Malinowski
ON HISTORY,	A. L. Rowse
ECONOMICS AND HUMAN BEHAVIOUR,	P. Sargant Florence
FATALISM OR FREEDOM,	C. Judson Herrick
EMERGENT EVOLUTION,	W. Morton Wheeler
MAN A MACHINE,	Joseph Needham
INTELLIGENCE,	Claude A. Claremont
THE BASIS OF MEMORY,	W. R. Bousfield
SELENE, OR SEX AND THE MOON,	H. Munro Fox
THE STANDARDIZATION OF ERROR	Vilhjalmur Stefansson
THE ALCHEMY OF LIGHT AND COLOUR,	Oliver L. Reiser
CULTURE: A SYMPOSIUM	Elliot Smith and others
THE BATTLE OF BEHAVIORISM	Watson and McDougall
OUTLINE OF COMPARATIVE PSYCHOLOGY	C. J. Warden
THE NOTATION OF MOVEMENT	Margaret Morris
MESCAL	H. Klüver
PRODICAL SONS	Montgomery Evans
*WORD ECONOMY	L. W. Lockhart
*THE MIND OF A CHIMPANZEE	C. K. Ogden

* In Preparation

2/6 net, per volume

KEGAN PAUL, TRENCH, TRUBNER & CO., LTD.,
BROADWAY HOUSE, CARTER LANE, LONDON, E.C.4.

THE GUIDANCE OF CONDUCT

EDWARD T. DIXON

PSYCHE MONOGRAPHS: No. 2

KEGAN PAUL, TRENCH, TRUBNER & Co. LTD.
Broadway House, Carter Lane, London, E.C.
1928

C/81

TO MY WIFE

MARGARET

WHOSE COMMON SENSE HAS AT MANY A TURNING HELPED

IN THE

GUIDANCE OF MY THOUGHTS

CONTENTS

PREFACE

Seeing that my purpose in publishing the following pages is, if possible, to lead the reader along a line of thought similar to that which I have myself followed in writing them, I think it may help if I attempt to indicate, even at the risk of seeming egotistical, how it comes about that views, which in the main I have always held, appear to have lain so long dormant. The fact is that though the flowers and the fruit have long lain dormant, their root and stem are fundamentally the same as they were in the ' long, long, Indian days ', in the hot weather forty years ago, when I first tried to work out an ontology for myself. Soon after, it began to dawn on me that there must be some difference between my views and the orthodox ones ; and it was largely with a half conscious desire to find that difference, that I went to study at Cambridge ; and then consciously tried, by publishing my own views and exposing them to criticism, to discover exactly where they branched off from the scholastic ones. The article in *Mind*, which I here re-publish as an introduction to the later chapters, was neither the first nor the last of the efforts I made in this way ; but like all of them it fell completely flat ; no one took the trouble to criticize it, everyone seemed to take it as a matter of course ; so I concluded that it could only be my stupidity which failed to see that the things in orthodox books on logic, which seemed to me so different, really meant much the same thing as those I wrote. That was four years before my last effort, now thirty years ago,when I read a paper before the Aristotelian Society (which, though printed, was never published), the main portion of which took the form of a sketch of a Theory of Order, intended to be what I now call purely symbolic, that is, founded on arbitrary definitions alone. At the discussion after the formal reading of the paper some criticisms were indeed offered ; or at least the opinion was emphatically voiced that ' order ', in my sense of the term, had nothing to do with the foundations of projective geometry. But even then I never really doubted but

that other mathematical philosophers had clearly in their minds the distinction which seemed so fundamental to me; that between real and symbolic (or as I then called them 'verbal') propositions. It did not occur to me that it was they who did not understand what I was driving at, so I concluded that I did not understand them; and that their theories, not only of the foundations of geometry, but of pure mathematics and pure logic, must in effect be regarded by them as what I called verbal. And consequently I concluded that if I were to set seriously to work to elaborate my Theory of Order in greater detail, I should only be groping feebly after their footsteps, without ever coming to results which had not already been reached by older methods, even if my methods themselves had not already been anticipated.

After that came interruptions, wars and rumours of wars; and, to cut a long story short, it was not till three years ago that I seriously got down to working out, for my own satisfaction or amusement, a strictly symbolic Theory of Order. It was not till two years ago, after showing a rough draft of the Theory to certain people who, I thought, might be interested, that I began to realize that some features in it might be both interesting and novel to a wider public; and so began to look out for a publisher; and I set to work to re-write the rough draft in a form fit for publication, in a book which I proposed to call "A Natural Philosophy". This book I still hope to get published before very long; but while I was in England the summer of 1927 about the publication, through conversations with philosophical friends, and especially with my old guide, philosopher, and friend, Prof. G. F. Stout, I came to a perception of where it was that my misunderstanding of the orthodox views originated, and moreover why it was that the orthodox misunderstood me.

But at the same time I came to realize something more. The effect of our mutual misunderstanding went far beyond a mere question of symbolic reasoning, or about the foundations of pure mathematics. It reached out not only to the foundations of ontology, but to the yet deeper foundations of ethics, and religion. My views on these subjects are indeed briefly indicated

in the volume entitled *A Natural Philosophy* now ready for the press; but by far the greater part of that work is devoted to the Symbolic Theory of Order, and its scientific applications. And, especially after hearing views expressed by a representative gathering of philosophers at the Joint Session of the Aristotelian Society and the Mind Association at Bedford College in the summer of 1927, it seemed to me that a separate explanation of the non-mathematical portions of my Natural Philosophy was needed, if only as an introduction to the larger book. The following series of articles, published in book form, is the result.

Perhaps I may shortly be able to publish a continuation of this series of articles under the title of *A Tentative Analysis of Matter*, giving a brief epitome of the scientific and mathematical parts of *A Natural Philosophy*; without which I am afraid the full significance of this series may hardly be apparent to any readers who are not prepared to take a good deal for granted. For I am convinced that it is only by a whole-hearted re-consideration of the respective parts played in ontology by trial and error on the one hand, and symbolic reasoning on the other, that a reconciliation between the conflicting views of Science, Philosophy, and Religion, can be attained. I hope therefore, that the reader will be able, not exactly to follow my line of thought, but rather to pursue a similar line of thought of his own. For even if it were possible to do so I should not wish to transfer any of my ideas bodily into his mind. The ideas, when they come, and the conclusions, when reached, must be one's own; all I can do, at most, is to point the way.

EDWARD T. DIXON.

Billy Dun,
Jamaica.
June, 1928.

INTRODUCTION

ON THE DISTINCTION BETWEEN REAL AND VERBAL PROPOSITIONS

There is one question, and it seems to me about the most important question which Logic is competent to determine, which has never, so far as my knowledge of the literature of the subject extends, been adequately discussed by professed logicians.* Every one will admit that language, properly used, is capable of conveying information; that is, that some propositions do definitely assert matters of fact, either truly or falsely. On the other hand it is equally evident that some propositions have not this function, as for example the propositions commonly referred to by logicians with a certain contempt, as 'identical propositions', and definitions which only tell us something about the way in which it is proposed to use certain terms. It is not a little remarkable that the ordinary text-books hardly discuss the question what truths are real and how they are to be distinguished from those which are merely arbitrary,—indeed they are not even agreed as to the answer, for sometimes it happens that what one logician maintains to be an assertion giving real information, another regards as an identity, or definition. This is notably the case with what are called the fundamental Laws of Thought. But the discussion of this question is distinctly within the province of Logic, for it is intimately bound up with the subjects of Definition, and Existential import which are discussed more or less fully in all text-books. It is also closely connected with the distinction which some logicians recognize between Formal and Material truth, which Mill dances round in a manner so peculiarly his

* This chapter was published in *Mind*, N.S., Vol. II, p. 339 in 1893. I reproduce it without alteration; and there is no alteration I would care to make, unless it were to substitute occasionally the technical term I have since adopted, "symbolic", for "verbal". For I have since those days discovered that some people use the latter term ambiguously, so as sometimes to mean by it the very reverse of what I mean by "Arbitrary".

own in his examination of Sir William Hamilton's Philosophy (ch. xxiii). Mill here refuses to recognize anything but real truth, and of course if he chooses not to apply the name 'truth' to such an assertion that any two quadrics in a plane intersect in four points, he can not be compelled to do so—but such assertions cannot on that account be excluded from the purview of Logic. The fact is that there is an important distinction between real and arbitrary truths, though neither Mill nor his opponents in argument seem to have grasped it in their discussions about formal and material truth. It was said, vaguely, that formal truth consisted only in consonance with the laws of formal thought; it was said that 'what is non-contradictory and consequent is formally true'. But this hardly goes to the root of the matter. Are the 'laws of thought' themselves formal or material truths? If a formal truth is consequent, i.e., deduced from some other proposition, does it matter whether that proposition is itself formal, or material, true or false?

But it would be useless to refute at length views which perhaps no one now entertains. It will be better for me to state as concisely as possible the views I support, and even if it should turn out that they are already embodied in some text-book that I have not come across, no harm will have been done. But if they should not find acceptance, I hope some other logician will take the opportunity of expounding the orthodox views, and explaining why the ordinary sources of information are so singularly silent on the subject.

I believe that, whatever it may be in theory, it is practically impossible to conceive a thing without any attributes, or an attribute except as pertaining to some thing. Whenever any concept is clearly before the mind, it always has both denotation* and connotation. But we may confine our attention to the one, and treat the other as an immaterial accessory. Thus we might take an argument about colours, picturing to ourselves

* To avoid circumlocution I shall always speak of "things" as denotation (whether objective or subjective) and attributes as connotation. Thus I should say that "whiteness" connotes the same attribute as "white things"; not that it denotes what "white things" connotes.

the colours as painted on boards, and yet recognize that the boards, and even the paint, were immaterial to the argument, so that the conclusions applied equally to any other similarly coloured objects. This fact has been noted and objectified into a Principle (with a capital P) of Equivalent Forms; but there is nothing to be gained by obscuring a simple fact under such a high-sounding title—the fact simply being that the argument was concerned with connotations only, and might have been conducted verbally without assigning any denotation whatever to the words, and that therefore the conclusion is equally applicable to any denotation the words may bear.

The process of separating an argument about connotation from irrelevant denotation may perhaps be carried out in more ways than one. The most obvious way seems to be as follows. Names which are well understood must be regarded not merely as marks of real or imaginary things, nor merely as marks of attributes; but as connecting links between certain things and certain attributes; so that to understand any term well is to possess real information. Thus every term, by the time it is well understood, possesses both connotation and denotation. It is also clear that its meaning is to some extent arbitrary, and may be settled by its definition, but that the definition once laid down there remains another part of its meaning, the discovery of which is a gain of real knowledge. We may lay it down arbitrarily that a given term shall denote a given set of things, or connote a given set of attributes, but having done so it is no longer in our power to determine what attributes it shall connote in the first case, or what things it shall denote in the second. The arbitrary part of the meaning of a term I shall call its *definition*, and the remaining part of its whole meaning its *import*. Thus by its definition I mean either the extension of the term or its intension, whichever is laid down arbitrarily, including not only those items of denotation or connotation explicitly mentioned in the assertion which determines the meaning of the term (which may be called the 'stated definition'), but every item which may be formally shown to be implied by that assertion.

It follows from this that any item which can be formally deduced

from the stated definition of a term is just as arbitrary as was the stated definition itself, and if we have any assertion whose truth can be deduced from the stated definitions of its terms, it is not a real assertion, and conveys none but verbal information; and conversely, if we wish to ascertain whether a given proposition 'A is B' is real or verbal we must examine the stated definitions of 'A' and 'B' and see whether they are formally dependent upon one another or not. If they are independent, the proposition is a real one, whether true or false: but even if they are not, the proposition may still be useful, as the expression of a verbal connection which was not at once obvious from the stated definitions of the terms. Further, as the connexion between denotation and connotation cannot be arbitrary, for we can not arbitrarily decide whether certain things shall, or shall not, have certain attributes, we can never deduce any facts of denotation from definitions by connotation, or *vice versa*, nor can any conclusion be deduced from the definitions, one of which is by denotation, and the other by connotation, without the aid of some real proposition to connect the two. Consequently the only use for formal reasoning may be said to be to elucidate the full effect of the stated definitions of terms; and to argue formally with terms which are 'well understood', that is, whose definitions and imports are well known, is waste of time. For if the truth of any assertion about such terms is not at once obvious, no process of formal argument can possibly establish it.

If a proposition is advanced and disputed, it may be that the disputants are agreed as to the definitions of its terms, and are really disputing a matter of fact. But as a rule no formal definitions will have been laid down, and it is open to either disputant to call on the other to define his terms. If one of them does so, a formal argument may follow as to whether the definitions are or are not independent, i.e., whether the proposition was or was not a real one. It may even be shown to contain a contradiction in terms. If neither of the disputants advance definitions, they may indeed seek to show that the proposition depends on some other proposition or propositions, but ultimately the difference of opinion must turn

out to rest either on the truth or falsity of some real proposition, or on a difference as to the meaning of certain terms, neither of which differences can be determined unless formal definitions are given.

Now the same term may often be defined in different ways, so that the same proposition may in the mouth of one speaker be real, and in that of another a 'truism' or verbal assertion. But if anyone wishes to maintain that a given proposition is a real one, the *onus pribandi* lies with him—he has only got to state the definitions of his terms and show that they are independent and the thing is done. If he cannot do this, the proposition itself may be taken as partially defining one or more of its terms; for if it is accepted no meaning can afterwards be assumed for any doubtful term it contained, in virtue of that acceptance, which can not be formally shown to be implied by it. For example, it has been maintained that Euclid's Axiom, 'Two straight lines cannot enclose a space' is only a partial definition of 'straight line'. This would be correct if Euclid had not previously given a definition, but as this definition implies that a line is a real object having length without breadth it cannot be arbitrarily asserted that there is a kind of line such that two of them cannot enclose a space. Again, if it is to be maintained that Newton's laws of motion are real propositions, independent definitions must be found for the terms 'force', 'uniform motion' and so on, for until such definitions have been given all the 'laws' do is to tell us something about the way Newton uses those terms. It is not of course to be inferred that the conclusions of Astronomy, in which calculations based on these laws are made use of, convey no real information, but reality is given to these conclusions quite apart from the laws of motion, by such laws as that of gravitation which is real, and not a truism.

This way of looking at reasoning is so simple, and probably so nearly the way most practical men look at it, that it may seem unnecessary to dilate upon it. But as a matter of fact it is very different from the methods expounded in the ordinary text-books of logic. Dr. Venn, for example, in his *Empirical Logic* commences by stating a number of 'Postulates' on

which he bases his system. The third of these is to the effect that words used in reasoning are to be taken to have the same meaning for all disputants. If this means that all words are to be taken to be 'well understood', or at least equally well understood to all the disputants both before and after the argument, we have already seen that it would render formal reasoning entirely superfluous. In another place he says: 'By admitting that the demand for a definition is a sort of *right* instead of a merely occasional concession to our mental indolence or frailty, logicians inevitably provoke a continued repetition of such a demand, and then the question arises: Where are we to stop? . . . The true answer is: you have no right to a Definition at all: the mere fact that you ask for one is in itself an admission of the general truth of our postulate about language*. Rather, I should say, it is the refusal of a definition which is based on the postulate; the demand directly implies its falsity, in the given instance at least. Dr. Venn does indeed admit that it is sometimes false; where I differ from him is in holding that if it were otherwise, formal reasoning would have no *raison d'etre* at all. The answer I should give to his question: Where are we to stop? is: Whenever we come down to terms about whose meaning we are sufficiently agreed i.e., which may be considered 'well understood' for the purpose in hand. Of course his postulate is so far true that if there were no such terms argument would be endless; but were there no others it would be useless. Again, Dr. Venn believes that purely verbal arguments are extremely rare. Even if he meant arguments entirely unconnected with real applications, the whole of pure mathematics and symbolic logic may be regarded as purely verbal arguments, and so also might probably the greater part of the arguments of past and present logicians and metaphysicians. Possibly, nay probably, if I had the opportunity of discussing my differences of opinion with Dr. Venn, the argument would in the end turn out to be purely verbal. Mr. Johnson has maintained that there is an essential difference between the subject and predicate of a proposition, in that something can always be predicated of a subject, whereas there may be predications which cannot be made of any subject.*

* See *Mind*, O.S. No. 1.

He says 'a subject is that of which something must be predicable'. This, surely, cannot be anything but a verbal assertion. I accept it as a partial definition of 'subject'. Naturally I should have expected after this that a 'predication' was that which had been predicated of a 'subject'? But on further examination it appears that the difference between a subject and predicate in Mr. Johnson's view is far deeper than appears by saying that there are predicates without subjects though there are no subjects without predicates. For to him a subject is a noun, a predicate only an adjective or equivalent phrase.* On this interpretation the syllogism could not be illustrated by Euler's diagrams. It is evident therefore that if I had entered into an argument with Mr. Johnson about the reciprocal position, or otherwise, of subject and predicate, it would have turned out to be a purely verbal one, and Mr. Johnson could at any time have put a stop to it by stating his definitions of 'subject' and 'predicate'.

If an assertion is accepted by both parties to a discussion it may be unnecessary to define the terms, that is it may be assumed (to save time) that in this case Dr. Venn's postulate holds, though the deductions subsequently drawn from the assertion may show that after all that assumption was rash. But if ever an assertion is disputed the first step should always be to demand or give definitions, or at least ascertain whether the assertion is intended as a truism or not. For the process of giving or discussing the definitions will do all that formal logic can do to clear up the matter in dispute. Consider for example the assertion 'Thought is impossible without language'. In the senses in which the words thought and language are commonly used this assertion is not only not a truism but it is not true. I might define 'thought' as a 'train of concepts passing through the mind which are noted and directed by consciousness'. The ordinary meaning of language might be stated to be 'any code of signs by which the sequence and relation of the concepts in the mind are communicated from one individ-

* That is to say Mr. Johnson makes the formal proposition S is P, a real one, if a noun is regarded as defined by denotation, and an adjective is connotation. But I doubt whether Mr. Johnson always meant this. (1927)

ual to another'. This definition is sufficiently wide, as it may include a canine language, or a language of ants. But it would be absurd to suppose that if a being had never tried to communicate with his fellows that he could never have noted or directed the train of concepts passing through his mind. But by a slight change in the definition it is easy to make the original proposition not only true but a truism. If we include in language 'any code of signs, whether objective or subjective, by which the sequence and relation of concepts in the mind are noted and directed', it follows that there can be no thought without such. But it may be doubted whether in this case the proposition would justify the conclusions which philologists seek to draw from it.

But there is a yet more important consequence which results from the view of the arbitrary nature of formal logic I am advocating. It is that the old classifications of propositions and sciences must be modified. The old division of propositions was into analytic and synthetic, of knowledge into *a priori* and *a posteriori*. But we have seen that the primary distinction, from my logical point of view, at any rate, between propositions is that between real, and arbitrary or verbal propositions; and sciences must therefore be classified according as their conclusions belong to the one category or to the other. A truism being purely arbitrary cannot be called a 'judgment' at all, either analytic or synthetic. 'Judgment' might indeed be defined as the act of assenting to real assertions, or of admitting the connexion between certain connotations and certain denotations, and a science based on definitions alone calls for no act of judgment at all. Pure mathematics and symbolic logic are such sciences (when properly expounded); and hence the 'certainty' of their conclusions. Formal reasoning may assist us in forming a judgment by putting before us all that is implied in the denotation and connotation we seek to connect, but it can never supply the connecting link. This fact of fundamental importance is frequently overlooked, even in the nineteenth century, and is still more frequently confused with that other fact of scarcely less importance, which is associated with the name of Bacon, namely,

that we cannot discover anything about the objective world by a mere examination of our own subjective consciousness, and *a priori* reasoning. The knowledge we obtain by such introspection is very different from 'mathematical certainty'; it is very real knowledge; the so-called *a priori* judgments are many of them true judgments; but they are separated by as impassable a gulf from truisms, as objective facts are from them. For such subjective judgments are formed by direct apprehension and comparison of real concepts actually present to the mind. As long as care is taken to express them in language which shall not give them an objective character they may be asserted with absolute confidence, and yet are in no sense arbitrary. Though we cannot say with certainty that material space is 'Euclidian' yet we can say absolutely that the space we are accustomed to conceive is such, and is not, for example, a Lobatchewskian space, or a space of four dimensions. Lobatchewski and Riemann have not shown that when I picture to myself the figure of Euclid's I. 29, that picture may be different from what I suppose it to be, but only that if I try to realize my picture on the blackboard it may be that I shall not be able to do so. It is absurd to think that it is possible to discover the nature of concepts by formal reasoning alone, as it is to think with Descartes that by forming concepts alone we can discover the nature of the objective universe.

It is unnecessary, and would be foreign to the purpose of this article, to emphasize the distinction between objective and subjective knowledge, between more or less satisfactory hypotheses on the one hand, and the inadequate and inconclusive, but indisputable, knowledge on the other. This has been amply discussed by logicians elsewhere, but the points I wish to bring out, the essential distinction between both these kinds of knowledge, and purely formal conclusions such as those of mathematics, and the simple way in which any proposition may be relegated to the one category or the other, are, I think, deserving of more attention than they commonly receive at the hands of logicians.

I

ON THE INTERPRETATION OF FORMULAS

I think it was Hobbes who made an observation to the effect that a word, or noun, was used to call up in my mind an idea which I had had before. This seemed to me when I first read it a most arresting thought; and, from references to it which I have since come across in the works of other philosophers, it would seem to have been to them also an arresting thought. Too much so indeed, for most of them appear to have stopped there, dead; they hardly even appear to have gone on to the rather different thought that I may also be able to use the word, pronounced or written by me, to call up in the reader's mind an idea like to an idea which I had had before, in my own mind.

This arrest however does not seem by itself sufficient to account for the infertility of the arresting thought; for, although not perhaps precisely in this connection, other philosophers have considered the problem of the communication of thoughts from me to you, or from you to me, by means of words. It seems to me, however, that in all discussions on this and on allied problems of psychology or of logic they have been hampered by an inveterate habit, the habit which Napoleon criticized when he asked how it was that his Marshals so often failed, where he succeeded. He said that they 'would make to themselves pictures'. Hobbes too, when he talked about calling up an idea like to an idea I had had before, was making to himself pictures, which he called 'ideas'; static things, with no life or force in them; the alternative being to make, shall we say 'judgments'? Judgments, that is, in the sense that a judgment includes not only a verdict, but a sentence; it does not merely express a truth, or a belief, but dictates an action, or conation. In the case of judgments delivered in a court of law this is quite obviously the case; but it may be objected that such a judgment is not an instance of a mere 'idea' such as Hobbes considered might be recalled to my mind by a single word, or noun.

I do not wish here to discuss this minor point, at all events not at this stage of the argument; and I have sought to suggest more precisely what it is I do wish to discuss by the title of this article, believing that the word Formula will not suggest a mere lifeless picture, as the word Idea perhaps might. It will suggest the formulae of mathematics, which commonly give, more or less explicitly, directions for executing certain mathematical operations, like addition or multiplication. That is the kind of thing I am trying to suggest, only I do not wish to confine it to mathematical operations; and I have tried to suggest a greater latitude by using instead of the Latin plural for the word Formula, an Anglicized (or perhaps an Americanized) form. I intend the word formula, as used here, to include not only scientific formulae, of mathematics or chemistry, but formulas used in the vulgar tongue, and by the vulgar press of the day; such formulas as 'the burnt child dreads the fire', or the formulas arrived at by politicians at Locarno; formulas which can be used as guides for conduct, even if, as in the case of the formulae of pure mathematics, the result of that conduct is only another formula. In this sense therefore the Interpretation of formulas has its importance, its significance, not in mere knowledge, or belief, as to what things ARE, but rather in their efficacy as guides to my conduct, or my choice; and in the last analysis that depends not on their mere existence, but on what they DO, to me, or what I can DO, to them.

It is all very well for me to 'make to myself pictures', in so far as they help me to guide my conduct aright; sometimes they may be very useful indeed for that purpose; I am sure that Napoleon never intended to imply that his Marshals were wrong in making use of maps, or in entering on those maps the reported positions of the enemy. He would have been the last man to deprecate that intuitive faculty of the great commander, praised by Wellington, of knowing what was going on behind the hill. But a mere picture of things as they were behind the hill would not have sufficed to tell the commander what was 'going on there; he would have required a film, and a kinematograph, to interpret to him the formula which the film represented; or at least he would require to know what the

enemy was *doing*, not merely where he *was*. This is perhaps peculiarly obvious in the case of military operations; just because people, those engaged in them at all events, can not look at them with merely academic interest. I trust, however, that the reader will not on this account discount the value of the lesson taught by this military illustration. I hope to show how, *mutatis mutandis*, the lesson applies to all our thinking. It is, I think, pretty generally agreed that philosophy has failed to solve the problem of what *Dinge an sich* really ARE; but it will be a notable advance if it comes to be pretty generally agreed that this existential problem is not the thing that matters; that we are on the wrong tack if we simply try to 'make to ourselves pictures'; that what really matters is what things DO; first of all what they DO to ME, or, conversely, what I can DO to THEM.

If however I say that the significance of a formula lies in its interpretation as a guide to conduct, I must not be held to have implied that a formula, in the sense in which I use that word here, is necessarily a categorical, or any other, kind of imperative. Suppose I see a child poking the fire, and I repeat to him the formula 'a burnt child dreads the fire'. I repeat it no doubt didactically, possibly also imperatively; but the child may very well accept it in the former sense, and not in the latter. He may now know quit well that if he touches one of the glowing coals it will hurt, and that thereafter he will dread the fire if he does not do so already. But the youngster may nevertheless badly want to have the experience himself, to 'know what it is like', if he can do it so that it does not hurt *very much*. But nevertheless the formula will have guided the child's conduct, even if not exactly in the direction I hoped that it would; for the child will approach the glowing coals with certain precautions, taking care, for example, to snatch his hand away the moment his finger touches the glowing coal; which he might not have done without the warning conveyed by the formula, for it would take a quite appreciable time before the pain made itself felt in the child's consciousness, after its finger came in contact with the glowing coal, during which time a severe burn would have resulted.

Thus the pragmatic value of the formula might be demonstrated; and the child's wisdom in accepting it only provisionally, while yet determining himself to put it to the test of trial and error, would also be justified. The child might henceforward regard that one trial as sufficient, and so accept the formula with its imperative implications; but even without more experiments voluntarily made on himself, the lesson would be 'rubbed in' by accidental burns observed on himself, or on other people; the formula would become to him a useful piece of knowledge, and be retained as such, perhaps long after the way he first acquired it had been forgotten. He would then unconsciously, or automatically, avoid putting his finger into the fire or the flame of a candle; the formula would have been superseded by a habit, of the origin of which the grown man was perhaps entirely unconscious; and he might even say that the facts that fire burnt, and that burning of one's body hurt, were intuitive, required no proof, were 'given *a priori*', etc. But, whether he expressed himself in philosophic language or not, all the more perhaps if he used only the language of common sense, he would be inclined to think that these formulas which he stored up in his mind consciously, and made use of occasionally, were items of 'Knowledge', having an intrinsic value of their own; just as a miser hoards treasury notes (when he can not get solid gold). He would 'make to himself pictures', and hoard them, as it were in a card index; a procedure which might be all right under some circumstances, namely if the purpose of it was eventually to realize some end useful to the maker of the card index, or to other people; when the formulas filed away (in such a way as to be instantly available when wanted) should prove useful guides to conation. Thus it is that the making to ourselves pictures out of formulas leads to the hypostatization of 'knowledge', and thence to the useless hoarding of it.

Not that I am in any way adverse to the mere hoarding of knowledge, *per se*, any more than I am, *per se*, to the hoarding of gold; I object to it only if, or in so far as, it is done uselessly, as it is in the case of a mere miser or book-worm. In other cases even though a student acquired a mass of knowledge

which in fact never proved any use to him or any one else during his life, it may indirectly benefit the human race not to discourage students of that sort; on the chance that one of them here and there may hit upon useful knowledge, although he did not himself purpose to do so. And this consideration is yet more potent in the case of knowledge which is hoarded in written formulas; especially if they are published by means of the printing press, and so widely distributed. The chance of some of the formulas turning out useful hereafter is here enormously magnified, so that it becomes worth while for seats of learning to tolerate quite a number of mere book-worms and pedants, in order here and there to find among them a genius who will add to the world's store of useful formulas; a Newton, or an Einstein, say; or a Socrates, or a Shakespeare; for what we have learned of them has come to us by way of formulas, written or spoken; but eventually all of them have been recorded and circulated in print; without which mechanical aid, even if a Newton or a Shakespeare had ever been found, it is not likely that you or I would ever have heard of him, or benefited by his wisdom.

Almost any sentence in any language, if it is intelligible to anybody, even if only to its author, if only it is spoken or written with a purpose, may be regarded as a 'formula'; in the sense in which I use the word here. As this use of the term already includes written formulas, it is a very small stretch of its use to include formulas written in hieroglyphics, or in picture writing, and then to go on to include formulas conveyed by any form of symbolism. We thus naturally include messages written in dots and dashes by the morse code, messages conveyed by a secret code in use among Red Indian scouts, or boy-scouts, or by pictures, or even more by moving pictures. Among such might be marks on the ground scratched by the feet, or even foot-prints, twigs on bushes, bent or broken, and so forth; but only such of them as were made *with a purpose*; more particularly in this case with the purpose of conveying information to some other scout. Foot-prints or bent twigs observed by a Sherlock Holmes, left involuntarily, or without purpose, by a suspected person, would hardly come under the head of

formulas, *prima facie*; though if the sleuth purposely left them as records of evidence, they would thenceforward come under that category. Thus it is an essential part of the connotation of the term 'formula', as here used, that it implies its use with a purpose, and therefore its use by an intelligent being. There could be no formulas in an unconscious world; if we conceive a world with rocks having what we regard as cuneiform inscriptions upon them, or even libraries full of parchments and printed books, including the works of Euclid and Einstein, but explain these things to ourselves as having arisen automatically by the operation of material forces without any interference from conscious willing, and therefore without any purpose being expressed by them, then these inscriptions and books would not come under the head of 'formulas', any more than, in general, would the peculiar forms of rock crystals, or even of growing plants. But, just as the sleuth might preserve footprints to serve as evidence, and so they might thereafter have for him a purposive character, and be used by him as formulas, so the man of science preserves rock crystals, plants, and even animals, in museums, horticultural and zoological gardens; and to him they are of use as formulas, whereby he seeks to guide his choices, in trying to explain to himself and to others the world in which we live.

For our immediate purpose however we may confine ourselves to verbal formulas, spoken, or more particularly to such as are written, in our own language; provided they are written, spoken, or even merely thought of, with a purpose. In general terms we may describe such a purpose, not, as Hobbes did; namely to arouse an idea which I have had before, whether in my own mind or in that of someone else, and either now, or at some indefinite future date; but rather the purpose is to guide my conduct, or to help towards doing so; or to guide or help to guide that of somebody else, either immediately, or eventually. Only when I here speak of 'conduct' I do not intend to refer only to objective bodily actions, nor to mere objective changes presumed to take place in the grey matter in my brain. Such things may for some purposes be regarded as parts of 'my conduct', but primarily 'my conduct' is to be

regarded as subjective, consisting of changes in my mental states, insofar as they are due to my own volition. It is only if I believe that changes in the objective world, movements or chemical changes in material bodies (parts of my own body in the first place, but after that perhaps in other and remote physical objects), are caused or interfered with by my volitions, that I can include any of them in ' my conduct '.

Taking this description strictly it would follow that written or spoken words whose purpose was merely to please, or to arouse emotion in the mind of the hearer or reader, would not count as ' formulas ' ; but it would be so difficult to draw the line in accordance with such a distinction that it is simpler to disregard it as a mere quibble.

Thus strictly speaking, the rhyme

" Dikery, Dikery, Dock,
The mouse ran up the clock : "

if addressed to a baby too young to understand the words, might please the baby, and arouse a smile on its face ; particularly if I danced it on my knee in time to the jingle. It might be said not to be a ' formula ' as it was not intended to influence the conduct of the baby, but only to arouse a subjective feeling in its consciousness. Nevertheless in point of fact it did influence the conduct of the baby ; it evoked a smile ; and I might just as well say that the purpose of the formula was to evoke that smile. That the verbal formula was aided by the physical dandling on my knee is immaterial, from my point of view ; I at all events believed, it was part of my purpose when using the formula, that it would help to evoke the smile, if only as a reciprocal indication to me of the happiness of the baby. Why the evoking of happiness in the baby should be a motive to *me* for any particular choice among my possible conations, is another story, which we shall however have to consider on some other occasion. The immediate point I wish to make is however that, though to the baby the rhyme could not be counted as a formula in the strict sense, any more than a Song without Words on the piano could be to you or me, yet the rhyme as used by me might be so regarded, by me ; and so even might a Song without Words be used to ' soothe the savage breast ' of an

irritable husband, out of whom a musical wife desired to wangle a new hat.

These familiar illustrations are designed to suggest to your mind a train of thought, leading up to the thought that the same verbal formula may, under different conditions, be used to produce, or to help in producing, different lines of conduct in some conscious mind. Under the different conditions referred to will of course be the different conscious minds upon which the formula may be said to impinge; and also the different states of any one conscious mind, if the formula impinges on it at different times. This thought may come as a shock to the student of scholastic logic; it certainly should do so; and would if it were not that his common sense had led him always to accept the dicta of scholastic logic in a merely Pickwickian sense. The moment we cease merely making to ourselves pictures of verbal formulas, the moment we realize that they are to be regarded not as static things, but rather as more or less potent motives, or guides for conduct, that moment we realize that a formula is to be judged by its results, not by the words of which it is composed. There is indeed a sense in which we may judge a commonplace formula, not exactly by its results as used on a particular occasion, a criterion which would depend on the mind of the person who had to interpret the formula, and not alone on that of him who uttered it. We might indeed, in special cases, judge it by the purpose in the mind of the speaker or writer of the formula; we might make him the sole arbiter of its 'meaning'. But in every day life this would hardly do; even if the speaker or writer intended the formula only for his own use, he would require, except in the simplest cases, to guard against changes in his own mental state on any future occasion on which he expected to use the formula; changes which might cause it on some such occasion to mean something different to him from what it means now. He would naturally require of any such device that it should also ensure to any other fellow on whose mind the formula might impinge, that it should also to him always mean the same thing; though possibly it might not occur to him that this was a different problem from ensuring that the formula always meant to the other fellow

exactly what it meant to its author. But even ignoring this second problem, the author of the formula could not always count on any other fellow accepting him as sole arbiter; for a special purpose the author might use 'technical terms' in technical formulas; as to whose meaning he, the author, was sole arbiter, whose decisions his reader might be expected to accept; but with respect to the common terms, and the formulas of every day life, it would be impossible to demand such an acceptance.

This becomes obvious when we consider in greater detail the device actually used by thinkers; first to guard against ambiguities in their own uses of words or interpretations of formulas, and secondly to ensure, as far as may be, that other thinkers shall use terms in the same ways, and interpret formulas similarly. Although the uses of technical terms for his own purposes, or even for the purposes of other people, if they are willing to accept them, may be laid down by a philosopher 'arbitrarily' (by which I mean without his being bound to allege any reason for the rulings) the rules by which he lays them down (commonly called 'definitions', or more particularly, 'verbal' definitions, since some philosophers talk also of definitions which are not supposed to be purely arbitrary, but are supposed to define 'things', or 'concepts' in themselves, not merely the names for them), are themselves what I call 'formulas', and as such they themselves require interpretation. And although such interpretation will be obvious enough to the author of the formula, it would not in general be so to anyone else, who did not, as we say, 'understand' the language in which it was expressed. No set or system of 'definitions' can give explicitly the meanings of every word in a language. When philosophers talk, glibly enough, but not very profoundly, about the 'dictionary meanings' of words, they forget that the English language is not learned by an Englishman out of an English dictionary. Such a dictionary as a rule gives only synonyms for words; only occasionally do the larger dictionaries quote passages showing how the words are actually used; in general therefore a dictionary is only useful for learning the meanings of special, or technical, terms, on the assumption

that the generality of English words are already 'well understood'.

We seem thus to be moving in a vicious circle; we are not explaining the interpretation of formulas in general, but only that of certain special or technical terms or formulas, in terms of other formulas whose interpretation has to be taken for granted, as already 'well understood'. This is indeed the *impasse* which most philosophers actually reach, and which most of them seek to jump over, or cut through, by saying that certain formulas are known 'intuitively', or '*a priori*', independently of experience. Such a formula, whose interpretation is not determined merely 'arbitrarily', i.e. by the '*sic volo, sic iubeo*' pronounced by the author of the formula, and accepted, if only 'for the sake of argument' by other thinkers, but is accepted as determined independently of the wishes or conations of the thinkers, is commonly called an 'axiom'; a name which we will adopt here. Men of a predominantly scientific caste or mind, who are, consciously or unconsciously, 'pragmatists', are ready enough to accept the existence of 'axioms' and to found their science upon them; in the same spirit in which they would accept any working hypothesis, admitting freely if challenged that they did not really pin their faith *absolutely* to the so-called 'axioms', but had really only pinned their faith to them provisionally. But I think it always irks them more or less to have to admit this; they would like at all events to reduce the number of axioms admitted to a minimum, even if they are regarded as only working hypotheses; and they would like to cherish the possibility that they might be something more, namely things actually *known* prior to experience.

I do not say that all men of science adopt this attitude; we all know that some very great ones among them do not. And it will be convenient to have a name for the kind of explanation, the kind of interpretation of formulas, which bases itself solely on experience, by means of trial and error. The adjective 'materialistic' would not be wide enough, for it must include explanations and interpretations which have nothing to do with the material world, as for example those of pure mathematics; but we may conveniently adopt the adjective 'scientific', which

is I think used widely enough to include not only materialistic but even psychological formulas, even those which are not exclusively behaviouristic. We may thus say that a philosophy is not purely scientific if it accepts axioms as anything more *a priori* than working hypotheses; or, better still, we may exclude hypotheses from the denotation of 'axiom' by definition, and then say that insofar as a philosophy can not do without axioms (apodeictic truths known prior to experience, or independently of it) it is not purely scientific. Though it must be remembered that this is not to say that there may not be a higher, or truer, philosophy than a purely scientific one; that is a further question which we may well leave till after we have investigated the possibilities of a purely 'scientific' philosophy. It is not however with a complete scientific philosophy that we are immediately concerned here, but only with a theory of the interpretation of formulas in a purely scientific sense; we have to see how far such a theory can go, if based solely on experience, without the assumption of 'axioms'.

Such a theory may therefore be an epistemology; but it does not profess to be a deductive one, on the contrary it is pragmatic, that is *a posteriori*, rather than *a priori*. We are not therefore debarred from accepting admittedly complex experiences among the data of our theory; indeed it is only by a complicated analysis that we can in any actual datum of experience discriminate anything which may, even provisionally, be regarded as an elementary experience. And similarly in the interpretation of formulas, as we have seen, we can never really begin with perfectly simple ones, or even with single well-understood terms. The understanding, even of the simplest word, comes only by the use of it; if it is to be 'well-understood' it must be understood in relation to most of the other words commonly used in connection with it; it can properly only be called 'well-understood' in relation to a whole language. Consider the case of the first word an English baby learns, 'Ma', or 'Ma-ma', reduplicated for emphasis. It would popularly be said to learn it by the association of ideas, in some such way as this. The mother teaches the word by repeating it to the baby as she hugs it to her breast; that is, in the baby's mind the sound

'Ma' and the person of its mother are represented by two ideas, presented in close juxtaposition, and these two ideas therefore come to be associated with one another. But it must have seemed to most of us who have given thought to the matter that such talk about 'association of ideas' is very loose, very vague, very unsatisfactory. Does it not make it much clearer if we modify the explanation into some such form as this?—In the baby's mind the two mental states or ideas occur in juxtaposition in time. The baby is striving to explain to itself its own varying mental states, and tries (not perhaps on the first occasion, but, may be, on the second or third) the explanation that the two ideas are connected with one another, in some such way as that which we adults call 'cause and effect'; and on subsequent occasions when he hears the sound 'Ma', or 'Ma-ma', he expects also to receive the mental impression of his mother and her hug. This expectation may not on all occasions be fulfilled completely; every trial is not a complete success; but by correction of errors in the primitive explanation tried, the baby eventually arrives at a working idea of what the word 'Ma-ma' means.

This way of putting it does not merely suggest, but it importunately insists, that any two ideas, spoken of as being thus associated, are not merely far from simple, but moreover that they are seldom mere static 'pictures' which the baby makes to itself. We might perhaps regard the sound we represent by 'Ma', or even that represented by 'Ma-ma', as a simple, or very nearly simple, idea; but what are we to say of the idea of the person of the baby's mother? It certainly is not a static picture, it is the sort of thing I call a formula; it suggests not a single thought, but a more or less complex train of thoughts, guided by certain more or less well-understood rules. It is a thing which does, not merely a thing which is. To an adult this train of thought may be extraordinarily complex; the orthodox logic would say that the word 'mother' has an immense amount of connotation; but here again it is trying to regard that connotation as composed of items, each of them in the form of a static picture, which can be filed away in a card index, for reference. I, suggest however, that we try to look at it rather as a formula, by

which we could, if required, guide our thoughts by voluntary conations, to review the various activities, past, present, and to come, of which a mother is capable. On any one occasion on which we use the word 'Ma-ma', only a few of these activities will be relevant to the question in hand, and only a few, if any, will be in the focus of our attention at the moment. Most of them will not be known to the baby at all; at first it may be there will only be those connected immediately with the satisfying of its hunger; but perhaps it is even more obvious in those than in more altruistic conceptions, that they are not mere passive pictures, but active guides to conduct, namely to the imbibing of nourishment. As I have said before, I have not the least objection to offer to our making to ourselves pictures, as a means to an end; they may be extremely useful as such. But we should not regard them as ends in themselves, without going on to make use of them in forming judgments to guide our conduct. We must not make philosophy into a mere search for barren knowledge, which does not go on further to indicate wisdom, as the means of utilizing such knowledge, to guide our conations.

If the reader will try looking at things this way, and get to look on the significance of a formula as lying, not in mere knowledge, but in wisdom; that is in the guidance of conduct by means of it; he will perceive that Philosophy may well leave the existential problems on one side, if it can offer a solution of the conative ones. I ask first therefore, not what are the things that I know, but what are the things which I can do. A given formula may indeed appear to convey to my mind mere knowledge, it may merely suggest to me a picture. But such mere knowledge would now be regarded by you, as by me, as a mere token or symbol, whose real value lay in the wisdom it gave me, in added power to guide my conations aright. And this even if I had no immediate intention of making use of that power, but merely hoarded it for the time being. Take, for example, the formula "William the Conqueror, 1066", which I was taught when a boy. It was to me in those days a mere item of knowledge; at best it only enabled me to make to myself a picture, of William the Conqueror being crowned a long while ago. If I regarded it as in any sense a guide for conduct it was not any such picture that

I cared about, but the verbal formula itself, which I memorized in order to be able to guide my answer to a question in school next morning; so as to gain kudos, and avoid punishment. Nevertheless such formulas, or the pictures they suggested to me, not perhaps any one of them by itself, but by their cumulative effect in giving me an idea of the history of my native land, did in fact serve as guides to my conduct, as they did to that of thousands of my fellow Englishmen; in helping to decide our conduct when the great war came, in helping us to choose between the alternatives 'Shall I join up?', or shall I be a conscientious objector. And they did so perhaps all the more effectively in that they were not actually present to our minds at the moment of making the decision.

But of course it was not any one historic fact, or even history as a whole, apart from any other influences, that decided the issue. The choice was not determined by any one formula, but by a synthesis of a large number of them, such a synthesis as is meant when we talk of the formation of character. The problem before us therefore consists not only in an analysis of formulas into simple elements, but also in syntheses of them; into formulas embracing greater complexities in effect, although they may still be expressed in apparently simple terms. A formula cannot be interpreted unless, after analysis, we can reconstitute the whole, by a synthesis of its parts. The simplest form of such analysis and synthesis is exhibited in what Pascal called 'definition', which, he said consisted merely in the substitution of a simple new name, or a compound new name formed by the addition of an adjective to a noun, for what would here be called a whole formula. He gave as an example a definition for the term 'even number', by saying in effect that it was a mere abbreviation for the formula 'number divisible by two without remainder'. I do not know that this does not really go to the root of the matter, if we bear in mind that formulas are only significant as being guides to conduct.

At all events it would seem that the amount and complexity of guidance for conduct which by this method might be compressed, as it were into tabloid form, by a definition, is almost unlimited. And if we examine the use made of this sort of

definition by Euclid, for example, it does seem to lead to some formal conclusions which we should hardly have anticipated without it, if only because we must own up to not having suffiiciently clear heads, or sufficient patience, to go no using the formulas in full, instead of the abbreviated technical terms, every time they occurred in the proofs. But on the other hand, bearing in mind the function of formulas as guides for conduct, we may I think get to understand the matter more clearly if we enquire what such a formula as Pascal called a definition really signifies. It is itself a rule for conduct, it enjoins me to substitute a symbol for a whole complex formula. By what right does it do so? The answer is, By no 'right' at all; in it I am enjoining only myself, if I am the author of the definition; and if I am not, then the author, when he lays it down *as a definition*, tacitly assumes that I will accept it, 'for the sake of argument', that is for the purpose of the argument in hand; even if I do not thenceforward adopt the definition for my own every day use. This answers the question 'By what right?'; but there remains another question, Can I do it? The only answer we need give is, Try, and see. I do try, and I find I can. All this I may express more simply by saying that Pascal's definitions were propositions asserted 'arbitrarily' (note that this statement is itself one of Pascal's definitions), and that they dealt with words only; regarded maybe as symbols or tokens, standing for other things, for things having maybe independent objective or subjective 'existence'; but if so that would have to be asserted separately; the proposition called a definition was only a rule to guide my conduct in the use of words as symbols.

And now, if this describes the essential significance of a definition in Pascal's form, let us try to comb out the unessentials. First of all let us make it clear that the existential import implied by putting the definition in the form 'An even number is . . . etc.:' is an unessential. It might just as well be put 'An even number divided by 2 leaves no remainder', so long as it is understood that this proposition is asserted merely arbitrarily, its correctness depending upon the arbitrary rules laid down for the use of its terms. I may thus lay down any proposition whatever, or any set of propositions, as definitions of some of

the words they contain, in theory; the worst that could happen would be that the language so defined might prove useless. Even if the arbitrary rules were such as I could not put into effect, if for example they were what we call 'contradictory', that would only mean that I had made an 'error'; my attempt to form a symbolic language had been a failure. But even so the attempt may not have been useless; on the contrary, this is a device often adopted intentionally in argument, and one which, properly understood, does not at all deserve the contempt cast upon it by philosophers too apt at 'making to themselves pictures'; it is the argumentative device known as '*reductio ad absurdum*'. And even if this method of argument is not deliberately entered upon, the pragmatic method of trial and error suggests that it may often prove worth while to proceed with an argument based on such arbitrarily laid down 'implicit' definitions, without waiting to demonstrate for certain that they are free from contradiction. The resulting argument may prove of value, if only as an intellectual exercise, or even if it eventuates only in a *reductio ad absurdum*; and in addition the discovery of the inherent contradiction may itself be of the greatest philosophic value. But although in theory we might thus even lay down implicit definitions 'at random', it would as a rule be great waste of time to do so; most of the resulting 'symbolic theories' would be either contradictory or merely futile, or both. In practice we shall generally be guided in laying down definitions by some practical aim, having to do with objective or subjective real applications, which we hope to give to our purely symbolic theory. We may be apparently guessing, almost at random; but even so probably there is some subconscious idea in most cases which guides our guess, or at least confines it to a few likely alternatives, which we can proceed to try successively. In any case therefore we note that the devising of *useful* symbolic theories depends upon trial and error, however much we may hold that such a symbolic theory is *per se* independent of it.

This method of what I call 'implicit definition' has of course, since the days of Pascal, been generally adopted by modern mathematicians; though within my own lifetime and personal

experience philosophers have been found to fight against it. The method has not however as yet succeeded in bridging the *impasse* I referred to above, and which may be represented as that between what philosophers might call materialism, and what men of science might deprecate as metaphysics; or as that which common sense talks of as distinguishing matter from mind. I believe that there are two prejudices, or misconceptions, which are in the main responsible for this *impasse*; one is the inveterate habit of 'making to oneself pictures' without thinking of them as likely to be useful hereafter, as guides for conduct, in the way which I have been attempting to describe; and the other is the failure to distinguish between, or to bear in mind the distinction between, real and symbolic propositions. By 'symbolic propositions' I mean such as are either themselves laid down arbitrarily as mere guides to my conations in using symbols, or else propositions formally deducible from such 'definitions', and which therefore give to me no more guidance than did the definitions formally laid down, and which I have already accepted. In the article which I wrote in *Mind* a good many years ago*, when I had in my thoughts mainly such propositions as occur in formal logic, I was thinking of words rather than of symbols generally; and accordingly I wrote about 'verbal propositions' instead of 'symbolic' ones. Moreover at that date I too was talking in terms of 'pictures', rather than of guidance for conduct. But nevertheless the distinction which I then drew is, *mutatis mutandis*, the same which I desire to point out to-day; only to-day I prefer to put it thus. If I am given a new formula, and am asked to accept it, what I am asked to accept is guidance for my conduct, in certain eventualities. But if such conduct is already prescribed, albeit in other words, by a 'definition', or by a set of 'implicit definitions' which I have already accepted, I call the new formula a symbolic one, and say it gives me no additional guidance. And even if such conduct has not already been prescribed by any accepted definitions, but the formula is such that I might accept it as merely arbitrarily prescribing certain new rules of conduct as to the uses of symbols, I may

* *Mind*; N. S., Vol. II (1893), page 339. Reproduced here, by the kind permission of the Editor, as an introductory chapter.

accept it as also merely symbolic; indeed I should be well advised to do so, pending an arrival to an understanding with the author of the formula. For (and this is the point) it is up to *him* to show that his formula is other than arbitrary, and purports to guide conduct otherwise than in the mere use of words or arbitrarily defined symbols. It may not always be possible to come to an understanding by means of a personal interview and *viva voce* debate, or even by correspondence; methods which might have the rather questionable advantage of modifying his views, as well as your own. More generally, the only way of coming to an understanding is by trial and error; that is by trying out the formula in various ways, and giving it various interpretations, till you find a satisfactory one; and this way has the advantage that you will be more likely to arrive at the original thought of the author of the formula, rather than at some second thought. Only it is not always possible to adopt this plan unless you have a wealth of material; it will not always happen that a single formula, in which the one or more doubtful terms in the formula now given occur, will suffice; and if there are two or more such doubtful terms in it, two or more formulas for comparison will generally be required. This will no doubt suggest to you the analogous case in algebra, of equations with two or more unknown 'quantities' in them; but the analogy must not be pressed too far; we can not infer that, as in algebra, the number of given formulas must always be exactly equal to that of unknown quantities. And in putting this method of interpretation into practice it is generally advisable to commence by trying to interpret the formula purely symbolically, that is as part of an implicit definition of the one or more doubtful terms it contains; for if this solution turns out to be satisfactory you can always afterwards give the terms any 'real import' which they will consistently bear; and in the meantime you will have secured the use of any theory which you may have worked out, by purely symbolic argument, as to the uses of the 'technical' terms. And so in giving real import to your terms you will at the same time be giving real import to purely symbolic inferences, which, if your symbolic theory is a complex one, it might otherwise have been impossible to anticipate.

Now there are two ways in which the use of symbols in symbolic argument helps us in the guidance of our conduct; which on further analysis lead us to rather different sets of considerations. The one has been already briefly indicated, namely it enables us to construct symbolic theories and keep them ready to hand, to be applied not merely to one, but perhaps to many, examples of real import; whilst so long as we are only constructing a symbolic theory we are not troubled by existential questions; we may say that we are not discussing 'truth' or 'falsehood', but only *correctness*, of symbolic procedure. To understand the other way we must try briefly to analyse how it is that common sense contrives to give 'real import' to formulas at all. For this purpose we may try to 'make to ourselves a picture' of a mind struggling with the most elementary conceptions or feelings. If I actually try, I find that there are some things which I can choose to do, 'arbitrarily', while there are others which I may try to do, without always succeeding. Among the former I find that I can think various thoughts, and discriminate between them, and moreover that I can, in memory, recall the discriminated thoughts, and think them over again; in the same, or in a different, order; at my own choice. Here then we have the rudiments of a symbolic theory; as Veronese puts it, "I think first a thing; and then afterwards I think a thing", or as I prefer to put it, I can think of various things, and can "pass them in review". On the other hand there are things which I can choose to attempt, but I find that with them I do not always succeed. For example, say, when I was a baby, I cried, and sometimes Mother came to me; but on other occasions I cried without obtaining that beneficial result. If thus my will is not omnipotent, I naturally explain this to myself in the first instance as due to the interference of other wills. But further experience, and more 'scientific' analysis, leads to a modification of this explanation; and I begin to picture to myself first of all an inanimate nature, governed by natural 'Laws', which sometimes interferes with my conations, though my conations in some measure also interfere reciprocally with it. I have thus effected a great dichotomy, between the things of Nature, and the mental states, thoughts, or feelings, which, to

distinguish them, I call mine. And I have made to myself a picture of the former, so I make to myself a picture also of the latter, which I call ME, as distinguished from NOT-ME (using the accusative case of the personal pronoun, since I am now looking at myself as it were from outside). If in this way I conceive myself to make a picture of Nature, or of the objective world, I picture in it my own body, arms, legs, and head; and I 'observe' in it other similar bodies, which I call 'other men and women'. But I can not stop there in my analysis of common sense; common sense goes on to attribute to these other human bodies conscious minds similar to ME.

Common sense could not get very far with this analysis, not nearly so far as it actually had got, even before the invention of arithmetic or geometry, without the use of language; and without the use in that language of abbreviations, or definitions, in Pascal's sense. In this way from the very first use of language, if not before that, the human intellect has been unconsciously availing itself of simple symbolic theories, simpler even than 'twice two is four'. But over and above this there is another, and perhaps even more important function performed by language, which it would be difficult to conceive as being performed without it. It is part of the common sense interpretation of my mental states that, by means of language, I get into communication, not merely with the bodies of other men and women, but with their minds. And in this it is to be noted common sense is not merely making to itself a picture; it is making use of a formula, concerned not primarily with what men ARE, but with what they DO; it is not the sounds issuing from a man's mouth that interest me, but the conations which cause those sounds, or make a selection from among possible sounds which his mouth might produce, which matter. But this intercommunication between minds has even a deeper significance, deeper than the mere imparting to me of a knowledge of the existence of other minds; in that it gives me wisdom to guide my conduct; and may point the way to a synthesis of the parts into which the philosophy of common sense has so far divided its universe. The first great dichotomy, of ME and NOT-ME, was suggested to ME by the feeling of a limitation to MY

omnipotence, and of an obstruction to its purposes. But, granted the reality of NOT-ME, its interference with ME constitutes a bond of union with ME, as well as a dichotomy; and it does so just as much whether I regard it for the moment as obstructive, or as helpful. Now, insofar as NOT-ME is constituted by the world of physical science, or Nature, men taking what I here call the scientific view, assume that the actions or interferences of one part of Nature with another are solely determined by natural laws; that is they expressly exclude guidance by a free will, such as I conceive myself to exercise when I choose the *order*, in which I shall think a number of thoughts over again successively. For the purpose they have in hand, which may be described as the making of a picture, or diagram (say in Minkowski's four dimensional space) of the universe, this may be, or perhaps may not be, adequate. But no such mere picture can ever be adequate for Philosophy. Except in so far as it provides a guide for conduct, it is not wisdom for ME. If on the other hand we admit, as the common sense (if not the philosophy), of every sane man admits, that, whether or not there is anything like free will or purpose in what we call inanimate nature, men and women at all events have free wills, like mine, and require wisdom to guide them; then we must recognise that the intercommunication of minds may not only add to my wisdom, by my learning wisdom from other minds; but also you and I may increase our joint wisdom beyond what either of us could attain separately, by a unification of our purposes; and, in a very real sense, by the unification for a joint purpose of our personalities, in a partnership.

Just as Newton conceived the sun and the planets to be unified into one solar system, by their mutual interferences, which he described in his formula for universal gravitation; just as modern men of science strive similarly to unify protons and electrons into atoms, and atoms into molecules, by their mutual interferences (whether they picture them in terms of forces, as Newton did, or of the buckling of a four dimensional space, as Einstein does) so, with even more pragmatic justification, we may talk of unifying minds into partnerships, companies, or other yet more complex organizations, by their mutual inter-

ferences. Not necessarily by one simple community of purpose, though perhaps we may in any successful human organization discern by careful analysis some common purpose governing and serving to imply the whole. At first sight however we find a variety of purposes, some apparently antagonistic to one another; just as in an atom or molecule there may be repulsive as well as attractive forces between the parts. But in any case such unifications of minds in order to do greater things than any one mind could attain by itself, imply mutual interferences between them; whether we conceive it to be direct, say by telepathy; or indirect, by our both interfering with the objective world of physical science, or even, say, by our both being interfered with, and mutually interfering with, some third mind, for which we may or may not be able to identify a physical body in Nature, but which we might call a Spirit, or God. If the guidance we are to receive from Philosophy is to be really helpful to ME by guiding MY conations efficiently, the 'picture' I make of the objective world of physical science must always remain inadequate, for it does not explain to ME how I can communicate with, or obtain the cooperation of, other minds for the purpose of ameliorating my own mental states, for the purpose even of obtaining what we call mere carnal pleasures, or avoiding mere carnal pains. Still less can it explain what we call more altruistic pleasures; how, for example, it can become a purpose of mine to call forth a smile on a baby's face, as an indication to me of the happiness of the baby. Only a philosophy which seeks to explain the unification of minds for a common purpose, or the organization of a number of them for mutual help, can claim to have arrived even at the beginning of wisdom. But this means that it must conceive the interpretation of formulas as concerned primarily, not with what things ARE, but with what they DO.

II

AN EXPERIMENT WITH TIME

As an illustration of my thesis on the Interpretation of Formulas, I find very much of interest in the anecdotes told by Mr. Dunne in his *Experiment with Time*, of his own and of other peoples subjective experiences. These he interprets, not as premonitions of subsequent objective events, bur rather as premonitions only of the subsequent subjective experiences of the same mind; and I find very much to admire in the way he exhibits his own really profound thought on the philosophic and psychological questions with which he deals, in the lucid language of common sense. Very generally, as I read, I feel sure that I am myself following out the very train of thought which was in his mind as he wrote; and, indeed, that it is much the same line of thought as one which I had myself previously worked out. But when I try in greater detail to apply my own 'formulas' to his anecdotes, and to his explanations of them, I come across certain discrepancies, or 'errors', which indicate to me that I have somewhere got off his track. Sometimes this may have been my fault, for taking too readily for granted that some of his technical terms were really 'well understood' by me; sometimes he may also have been partly to blame, for not having realized, or consistently observed, the distinction between real and symbolic propositions.

But over and above such minor difficulties, which doubtless I might eliminate by further study, even without any aid from Mr. Dunne himself, it seems to me, *prima facie* at all events, that Mr. Dunne has sometimes been 'making to himself pictures', which he has mistaken for realities; instead of taking the pictures, as he might have done, for what they are worth, as guides to conduct.

As an example of an apparent ambiguity of language, whose deleterious effects might perhaps be eliminated by more careful study of the text, even if only by recognizing that Mr. Dunne

does use the word sometimes in one sense, and sometimes in a rather different one, we may take his use of the word 'dimension'. I refer to this not by way of criticism; Mr. Dunne probably does not regard this word as what I should call a 'technical term', but rather as a common-sense one which is well-understood by everybody; in the rather vague way in which it is commonly used, not only by the 'man in the street', but by philosophers; at all events when they conceive themselves to be writing down to the level of the man in the street. Sometimes both he and they use it in a sense for which 'direction' might be a synonym, as on p. 102 of Mr. Dunne's book, where he expressly warns the reader against "confusing a dimension with a line". And on p. 107 he quotes another philosopher, Mr. H. G. Wells, as making an even worse 'confusion', namely

> "'There are really four dimensions, three of which we call the three planes of Space, and a fourth Time. There is, however, a tendency to draw an unreal distinction between the former and the latter, because it happens that our consciousness moves intermittently in one direction along the latter . . .'"

Now I believe that if you left the man in the street to himself he would not confuse a 'dimension', with a line, or with a plane; or with a direction either. He would say that the word stood for a measurement; such as a yard, or an hour perhaps. He might concede that any such dimension was 'made in a certain direction'; that in a line you could only make such measurements in one direction (or its opposite, by the way) whereas in a plane you could make it in two (or, by the way, in any number of intermediate ones). But even if at this stage the man in the street began to get a bit muddled, it would have become evident that, though he might be merely making to himself a static picture of a 'direction', what he understood by a 'dimension' was to him a 'formula', a guide to conduct; e.g. when he came to measure up a brick. Mr. Dunne himself, when talking more particularly, perceives this, e.g., p. 106, "... regarding Time as a fourth dimension. . . . It is a way in which matter must be measured". Now I do not think that it would be very difficult

to determine by the context whether in any one passage Mr. Dunne was thinking of a 'dimension' as a static picture, a 'direction', or as an active formula, a way in which matter, or in which a diagram, might be measured. But the distinction between the two thoughts is highly significant; and if, in reading on, I should find any confusion between the two thoughts, either in my own mind, or perhaps in Mr. Dunne's, it would very likely lead to serious discrepancies between our conclusions.

I must now try to give an outline of how I apprehend Mr. Dunne's theory of 'serial Time', or 'serialism' as he more briefly terms it. And this not merely because it is always possible that neither I, nor even you, have really followed his train of thought so exactly as to have the same apprehension of his theory that he has himself, or so exactly that you and he have the same apprehension as each other. Of course it is true that if Mr. Dunne has failed to communicate his train of thought exactly to me, or to you, it is not very likely that I shall be able to communicate mine exactly to you; but inasmuch as the only method of communication in any case is by trial and error, there is nothing for it but to try.

Mr. Dunne begins by giving a number of anecdotes of personal experiences; not, as he himself is careful to explain, as evidence of objective facts, but in order to let you know the train of thought which led him to certain conclusions; in order, that is, as I might put it, to serve as a guide to your conations, in so far at least as these directed your thoughts. Or, as I might put it even more briefly, Mr. Dunne in fact puts forward these anecdotes in the hope that you will accept them as formulas, and will not stop at making to yourselves pictures, to represent them. In fact, though he would hardly express it in the same language as I do, Mr. Dunne is here concerned not with imparting 'knowledge', but with getting you to enter upon a train of thought of your own, similar to the train of thought in his mind; and what his anecdotes do is not merely, or mainly, to suggest to you pictures, but, to guide your thoughts, so as to run parallel to his own. He shows how these personal experiences by the method of trial and error, led him gradually to formulate to himself an explanation, which seemed capable of explaining not

only one, but all the experiences; and he hopes that you will follow his train of thought, and will also find that the explanation he proposes is at least plausible, with respect to the anecdotes given, of his own experiences. But even to himself this does not seem sufficient; the degree of conviction so far reached does not seem adequate, and he seeks to supplement mere observation by experiment.

Mr. Dunne recognizes this clearly, though I am not quite sure that he appreciates the reasons for it precisely as I should. He says, for example, (on p. 27) that a fact "cannot be regarded as scientifically useful unless it fulfils the conditions that it is 'open to anybody to observe'". The last phrase he quotes from somebody else, but as he accepts it himself, this does not matter to us. For myself I am not quite clear as to how he understands anybody to 'observe' facts; nor, if the observation is done by anybody else, how he conceives it to be communicated to ME. But, at a later stage of our train of thought, we shall doubtless clear our minds on these points, more or less; the point to which I wish more particularly to direct your attention now is rather different. The distinction which common sense recognises between the convincing power of an 'experiment', over and above that of a 'mere observation', lies in the fact that in the former case the experiment was *purposed beforehand*, by a conscious mind, having a conscious anticipation of a result, positive, or negative; confirming, or not confirming, a consciously entertained explanation; whereas when we talk of a 'mere observation', after the event any explanation which it implies (and in general it will imply an immensely complex web of explanations) is regarded as having already been accepted, as being therefore no longer in dispute. The phrase Mr. Dunne quotes, 'open to anybody to observe' does not clearly express this point; the accumulation of 'mere observations', whether by me, or by anybody else, would not have in it the 'kick' which a smaller number of 'experiments' consciously purposed, with anticipation of their results, in accordance with some explanation, would have; for or against that explanation. And this point can not be dismissed as nothing but a psychological idiosyncracy in my, or anybody else's, mind; on the contrary

it is a direct result of the pragmatic acceptance by common sense of the significance of formulas, as rules for the guidance of conduct; that significance having therefore to do with the future, rather than with the past. The 'kick' is due to the joy of a realized anticipation; and can not be obtained in the same degree by merely contemplating that if, before a 'mere observation', you *had* applied that explanation, and *had* anticipated that result, *then* the 'kick' might have come too.

But whether Mr. Dunne would accept this analysis or not, he in fact appreciates the value of experiments, consciously purposed beforehand; and the title he gives to his book seems to indicate that he appreciates it even more highly than the collection of 'mere observations', from however large a number of people. And certainly the experiment, or experiments, which he proposes have the merit of appealing to common sense, whether that be for the reason which my analysis would indicate, or for some other.

I myself could not describe these experiments, and their purport, with anything like the lucidity, or the brevity, of the description of them in Mr. Dunne's book; and I can only recommend the reader to study them himself; the brief epitomes I shall give of one or two of them here are rather for the purpose of applying my own explanations to them, instead of his; in order to illustrate my own methods, and moreover to try whether or not these do actually lead me to a train of thought parallel, or nearly parallel, to Mr. Dunne's. But before going on to that, I may say at once that the faculty of premonition, if we may so call it, or at least the fact that many human thoughts appear, *prima facie*, to be premonitory, is shown by his experiments not to be confined to the experience of a single person; or even of a very small number of them, who might be regarded as abnormal, whether as specially gifted individuals, or as freaks.

I am not myself among the number of persons who have tried Mr. Dunne's experiment successfully; I tried it, rather half-heartedly, on one or two mornings, but although I was able to confirm what he says about the difficulty of remembering dreams, and also about the ways in which memory may be aided in recovering them, I did not find anything which could be

counted as a premonition; and I then deliberately refrained from making further experiments, for the time being, in order to leave my own mind quite unprejudiced, and able to look at the matter as it were from outside; at all events until I had been able to write this paper. As he does, I leave his explanation, which I might almost call his 'symbolic theory', to the last; let us not even try to anticipate as yet whether it is going to satisfy us, or not.

Mr. Dunne begins with two anecdotes dealing with observations of his watch; the second of which is the one I propose here to analyse, but the first leads up to the second, so that I must just say a word about it. He tells us that he dreamed of looking at his watch, which he took out of his pocket; he saw that 'it had stopped, with the hands at half past four'. With that he awoke, lit a match, and found that the watch was not in its usual place by his bed-side, but in a place from which he could not possibly have read the dial, even had he been awake, lying in his bed, and the room had been lighted; but he actually found that the watch had stopped, with the hands at half past four, as in his dream. Mr. Dunne adds other interesting details, whose significance he analyses acutely, but they do not concern us just now; the experience interests us here only as leading up to his second anecdote, which is concerned not with a dream, but with a conscious effort to read his watch in a similar, apparently clairvoyant, manner, as in the dream experience. He seems to have evoked what French psychologists call an *illusion hypnogogique*, and he thus describes it:

> "Closing my eyes, and concentrating my thoughts upon wondering what the time might be, I fell into one of those semi-dozes in which one is still aware of one's situation. A moment later I found myself looking at the watch. The vision I saw was binocular, upright, poised in space about a foot from my nose, illuminated by ordinary daylight, and encircled by a thick, whitish mist which filled the remainder of the field of sight. The hour hand stood exactly at eight o'clock; the minute hand was wavering between the twelve and the one; the second hand was a formless blur. To look more intently would, I felt, wake

me completely, so I made up my mind to treat the minute hand as one treats the needle of a prismatic compass, and to divide the arc of its swing. This gave the time as two and a half minutes past eight. That decided, I opened my eyes, reached out under the mosquito curtains, grabbed the watch, pulled it in, and held it up before me. I was wide awake, and—the hands stood at two and a half minutes past eight".

Now if I begin to analyse this anecdote in my own way, which may, or may not, be materially different from Mr. Dunne's way, or from yours, Reader, but is probably in any case expressed in rather different language, the first point that strikes me is that Mr. Dunne's *illusion hypnagogique* was to him not what I should call a mere 'picture', it was essentially what I call a 'formula'; though one expressed in visual imagery, and not in spoken or written words. We may personify the author of this formula as Mr. Dunne's subliminal self, perhaps; but undoubtedly the recipient of the formula was Mr. Dunne's conscious self, and he proceeds at once to adopt its guidance for his deliberate conduct. I am not here insisting on taking it as a formula merely because it was not a static picture, but a moving one, inasmuch as the minute hand 'wavered'; but because the 'reading' of the watch which Mr. Dunne deliberately adopted was not reached by mere contemplation of the (static, or moving) picture, but by adapting his conduct to the guidance which it afforded.

The next point to be noted is that when Mr. Dunne adopted the guidance of the formula, he did so by acting in accordance with a certain symbolic Theory; or at least with a theory which I establish for my own use as a purely symbolic one, even if Mr. Dunne, who would call that theory arithmetic, does not regard it as so established. I should say that however Mr. Dunne's readings of the extremities of the arc of swing, zero, and five, were obtained, the act of inferring that the number called the arithmetic mean of zero and five is $2\frac{1}{2}$, was a symbolic one; although the giving real import to this number, as the adopted reading for the watch, again involved something more than symbolic argument. We have therefore in this illustration a case in which the interpretation of a formula involves symbolic

argument; and indeed this is a common feature in all cases involving measurement, though I am far from asserting that there may not be other cases in which this feature is absent, or insignificant.

And, thirdly, let us try to clear our minds as to what Mr. Dunne, in common apparently with many philosophers and men of science, especially the more modern ones, understands by the term 'observation', or 'an observation'. A scientific 'observation' is commonly accepted as a premiss upon which a scientific argument may be based; and it is commonly accepted by men of science as giving, as far as it goes, knowledge of the physical world. No doubt it is recognised that there may be such a thing as faulty observation, and that in any case observations involving measurement can never be taken to be more than approximations, with a greater or less 'probable error'. Moreover it is pretty generally recognised in practice, though not much discussed in theory, that many so-called 'observations' embody, as 'enthymemes', a large amount of conscious, or unconscious, inference from 'sense data'; while strictly speaking only sense 'data' ought to be called 'observations'.

But even if we could eliminate or disregard any such thing as unconscious inference, it is not possible in practice to draw any hard and fast line between 'sense data' and sense impressions, or what Mr. Dunne calls 'presentations' (p. 15). Many things in what Mr. Dunne calls the Field of Presentation are not apprehended as sense data, but only inferred, as parts of, or implications of, some explanation of something; which may not always be itself a sense datum at all, if that term is used to denote a neural stimulus reaching the grey matter of the brain from a sense organ of the body.

If then the Field of Presentation at any moment can not be taken as a whole to be a sense datum, it must often be difficult to isolate any one element in it which may be so taken. Mr. Dunne takes 'red', or 'redness' as such a datum when the whole, or some part of, the field may be said to be 'red'. I want here to suggest another, and to urge the closeness of the analogy between 'moving' or 'motion', and 'red' or 'redness'. Philosophers and psychologists frequently

recognise, but seem also frequently to forget, the closeness of this analogy; Mr. Dunne not merely recognises it implicitly, but gives excellent illustrations of it; which he in the main appears to quote from Eddington, though the same or very similar illustrations have often been used before. He quotes, (p. 127)

> "From the windows of our railway carriage we see a cow glide past at fifty miles an hour, and remark that the creature is enjoying a rest".

In other words, we first 'see' a cow in motion, namely at 50 m.p.h.: but on second thoughts we correct this sense impression, when we realise that it is we who are moving at 50 m.p.h., and not the cow. So with the second illustration, in which our train is supposed initially to be at rest in a station; but "looking from the windows on the side remote from the platform, we perceive another train at rest upon the rails. As we watch it the whistle blows, and we become aware that our train is beginning to pull out. Faster and faster it goes; the windows of the opposite train are running swiftly across the field of view; but a doubt arises . . . we miss the accustomed vibration of the vehicle. We glance towards the platform windows, and discover, *with something of a shock*, that our carriage is still stationary. It is the other train which is moving". (*My italics*)

Again, on second thoughts, we correct a sense impression which we at first accepted as a sense datum, in order to make it agree with some other sense datum, or with our explanation of our sense data. This second illustration is a particularly valuable one on account of the words I have italicised, 'with something of a shock'. I think I have already drawn attention to the fact that this sort of shock, almost if not quite a feeling of 'uncannyness', may always be taken as indicating that one of my explanations of the objective universe, which I not only believed in, but which had become with me an automatic habit, had been rudely upset. The result of further philosophic analysis may, or may not, be to show that such automatic explanations are rather of the nature of what I call 'formulas' than static pictures; but in either case they are just what the

man in the street takes to be 'sense data'; to him motion, when seen, is just as much 'given in perception' as is redness; and as the Chief Scout long ago pointed out to all boy scouts, when observing with the greatest care the visual field of presentation, it is easier to see 'motion' than to see redness. Even a 'rooinek' may escape observation, if he only lies still.

But for our purpose all these illustrations are defective in one respect; though for another purpose that respect is most illuminating. They assume, namely, that there are only two things concerned in the problem, and so that the question is only whether 'we', or 'it' is in motion, the other in either case being taken to be at rest. Even the man in the street therefore thinks that he can explain away the difficulty by talking about 'relativity'. But it is easy to adduce illustrations where this will not do, where we are not concerned merely with the relative motion of the observer and the thing observed, but with relative motions of component parts of the thing observed which can not be explained as merely apparent motions; due to changing perspective to the observer, caused by his own motion. I have myself often 'seen' motions of this character, which, on second thoughts, I had to admit were not really taking place, according to the common sense explanation of the universe. But I must warn you, Reader, that the mere looking out for such cases is very apt to prevent them from arising, just because it is apt to destroy the automatic character of the unconscious inference, which alone makes you 'see' the motion. Cases of mere observation will therefore generally come only 'accidental like'; even the most carefully devised laboratory experiments may often fail, particularly if the observer knows what to expect.

As an example of a case observed accidently by myself, I was sitting idly in a motor boat, gliding through the rippling water of the Solent, which I saw, streaming past the gunwale. After a moment or two I dropped my eyes, onto a mail-canvas hood, which was not up, but folded along the gunwale. I then 'saw' the warp and woof of the canvas squirming, with an inexplicable motion; the lower threads moving faster than the upper ones, in a way which, if it had really taken place,

must have torn the threads. It is not easy for all persons to repeat this experimentally; even if you asked them to do so without telling them what to expect, many of them would have difficulty in maintaining their line of vision fixed, while glancing over the rippling and moving water, even if you asked them to fixate an immovable point on shore. There is however a well-known laboratory experiment which is easier for the uninitiated to perform, and is generally successful even if he does know what to expect; though I have found persons with whom it fails.

The apparatus consists of a vertical circular disc which can be rotated on a horizontal axis. On the disc is painted a black spiral; say by first drawing on the disc two curves, mathematically defined by the equation $r = a \cdot \theta$ and $r = a(\theta + \pi)$; and filling in the space between them dead black, while leaving the space between $r = a(\theta + \pi)$ and $r = a(\theta + 2\pi)$ (which is the first curve over again), dead white. If I stand before such a disc and fixate the centre steadily, while it is being slowly rotated (say 5 to 10 revs. per sec.) the sense impression is that of a number of con-centric circles, either issuing successively from the centre and expanding to the circumference, where they vanish; or, *vice versa*; appearing first at the circumference, and successively shrinking in towards the centre, where they vanish. Of course if I try to follow any one of them with my eyes, or even with my attention only, the illusion is modified, or even destroyed; but if I keep my eyes and attention steady it is extraordinarily lifelike, as a rule. If now the disc is unexpectedly brought to rest, for a few seconds the concentric circles are still seen, but their motion has become reversed, i.e., inwards towards the centre if it before was outwards, or *vice versa*.

It is obviously impossible to explain this phenomenon by hypothetical, unconscious, eye-movements; or to suppose that the optical images on the retina are expanding or shrinking circles, which reverse their motion when the disc stops; whatever form the images on the retina take, they must stop when the disc stops, or else move bodily if the eye moves; undergoing only such changes of shape or size as might be explained by

perspective. But common sense will say, and it can hardly be gainsaid, that the fact that *I saw* the reverse movement has got to be explained, *somehow*; in other words it will say that it was itself a sense-datum, in precisely the sense in which it would say that, looking afterwards at the disc at rest, part of it was black, and part white; or, perhaps, part blue and part red; and that blackness or redness were sense-data.

But here I dare say a young relativitist will gaily step in, and tell me that I am behind the times; that Minkowski has explained away all that; in a way moreover which makes it no argument in support of the thesis that sense impressions are to be regarded as formulas, rather than as mere pictures. He will tell me that what I am doing when I 'see' a motion, is precisely analogous to what I do when I 'see' that two straight lines are inclined to one another in space; that in fact what I call a 'motion' is really an inclination of two 'historical paths' in Minkowski's four dimensional space, to one another; and so may be represented by making to oneself a 'static picture' of a motion, just as well as we can of an angle. This of course is put forward only as a mere sketch of the explanation; the relativitist would doubtless be able to supplement it, and bring it into a form with which I should almost entirely agree; no doubt so far as the argument was drawn from a symbolic theory of geometry of four dimensions I should find it perfectly correct; and there would only remain a point of real interpretation, which will come in again when we consider Mr. Dunne's theory of 'serialism'; the discussion of which I propose therefore to postpone till then. In the meanwhile we must go on to consider illustrations which do not embody the impression of 'motion' as an elementary sense datum, but which seem to me to imply that most of our sense impressions have their significance, not as merely giving us a knowledge of reality, but as providing us with guidance for conduct; even therefore if we may regard them as static pictures, or as *Dinge an sich*, their real value comes to us by regarding them also as 'formulas'.

A good many years ago now, I was walking with a friend* who was also a great psychologist, and who, I fancied, did not

* The late Dr. W. H. R. Rivers.

adequately appreciate the very point I am now trying to make. I saw on a wall a poster, of a type which has since become common enough, but which was then new. No doubt it was intended to advertize somebody's whisky. It depicted a cheery old gentleman in dress clothes and an opera hat. The background of the picture was dead black. I asked my friend to look at the old gentleman in dress clothes and an opera hat; he stopped, and gazed for some time ruminatively at the picture before answering, as was his way; and then asked what I saw peculiar about it. I said " He has not got any dress clothes, or any opera hat ". After a pause my friend burst out laughing, and said, " No more he has ". And in fact all that was drawn on the black background was a face and two hands, a white shirt-front and a pair of white shirt-cuffs.

Now if we are to say that the sense impression actually received, an old gentleman in dress clothes and an opera hat, was nothing more than a mere picture, we must say that it was a picture made to itself by the subliminal self; in part at least, for there was no sense stimulus coming from even the outline of the dress clothes or hat; there was in fact no such outline. I do not raise any objection to this way of talking, but if we talk thus we are in fact saying only that what seemed a static picture, to the conscious self of the observer, was in fact to his subconscious self a formula, guiding the thoughts of the conscious self. It guided him not to conceive any *particular* outline on the black surface; it did not, for example, suggest that the old gentleman was wearing a swallow-tail coat, rather than a dinner-jacket. It guided him rather to think of the old gentleman as dining with gusto. And even if this was not the purpose which his subliminal self conceived for the formula, we may well guess that it was just the function which the 'publicity agent' or artist of the poster intended it to perform.

We may thus speak of a formula not expressed in words, but in this instance in visual imagery. I propose now to go on to one expressed in auditory imagery in the same sort of sense; for it would be a mistake, as Mr. Dunne points out, to regard what he calls the Field of Presentation as purely visual; that would indeed be just one of the mistakes into which the

unchecked habit of 'making to ourselves pictures' would lead us. To show that it is a mistake, it suffices to point out that, if it were the case, a person born blind would have no 'field of presentation' at all! Moreover, whenever we hear such a remark as "That is the postman's knock on the front door", or read that "The terrified man, groping in the dark, heard a stealthy foot-step behind him", the sound is *placed*, in a field of presentation which primarily is an auditory one; though persons of predominantly visualising habit may make to themselves a visual picture to put it into. But in most of these commonplace illustrations it might be objected that the features in them which suggested that they were formulas, rather than immediate data of experience, were really read into them as after-thoughts; and belonged rather to the account given of the sensory experience afterwards, than to the sense datum at the time. But the observer in the case I am about to record would certainly not admit this; it was just the immediacy of the experience, as a sense datum upon which objective conclusions might be based, which gave to it the evidential value he prized.

It is of course open to us to disregard its evidential value for the purpose of establishing objective conclusions, on other grounds; but I see no grounds whatever for doubting its value as evidence of his own subjective or psychical impressions; for in fact, as such, they did not differ materially from those we all experience in every day life. The case comes from the records of a spiritualistic seance, and this exordium is perhaps needed lest you, Reader, should take it to be thereby 'tainted at its source'; but to me this counts even as one of its merits. For we are not concerned here with the questions on which spiritualists and orthodox men of science are divided, and the conditions of the seance ensured that the recorder should at least try to record only what he conceived to be sense-impressions, without consciously recording, as such, what were merely inferences drawn from sense data. He was not conscious of having 'made to himself a picture'; if such a picture, or formula, had in fact been made, say by his unconscious self,

this would only show that things which we take as sense data, giving us direct knowledge of the world of physical science, and accept as 'observations' of that world, may be mere inferences, and perhaps remote ones, from actual 'data' of sense.

The persons taking part in this seance, of whom the recorder quoted here was one, assembled in one, lighted, room, adjoining a second, un-lighted one; in which the seance was to take place. Before moving into the latter certain objects, amongst them a bell, were put in evidence; and left in the first room, in the hope that they might serve as '*apports*', that is objects fetched and placed before the members of the circle, during the seance, without the aid of human hands. The part of the record I wish to quote stated that during the seance, which was held in the darkened room "I heard the bell come from the next room through the wall, ringing as it came, and dropping down on the table before us". I am quoting from memory, and may not have remembered the exact words, but I think I have the sense exactly enough for our purpose. *Prima facie* this records an experience in a purely auditory field of presentation, which is conceived as a mere sense-impression; but it is also put forward as a direct (although not visual) observation, of a physical occurrence. If that recorder happened to be a person who habitually made use of visual imagery, he no doubt had a visual picture more or less conspicuously before his mind, as well as an auditory one; but if so the visual picture was certainly not the direct sense impression, it was only 'made to himself', by conscious or unconscious inference, from the auditory data. But even the auditory sense impression recorded was at least in part similarly inferred; it was so at least in that part which attributed positions in space, to the bell or to the sound thereof.

Psychologists have found experimentally that we have no power of indentifying the direction or distance of a source of sound by ear, comparable to that afforded by monocular and binocular vision for identifying the position in space of a source of light. Nevertheless we all habitually do make some presumed identifications; only we do so by mere random guesswork, or by inference from data other than the mere auditory impressions

of the moment. In the instance before us no such other data are recorded, and we may take it therefore that they were not part of the presumed sense impression which he records. He was not, for example, consciously aware of the sound of the bell being at first 'muffled', and then becoming more clear as it came 'through the wall'. Still less was he aware of a crash and the noise of falling bricks and mortar as the bell came through. He does not even record the bang on the table when the bell dropped on to it. These things formed no part of the subjective impressions he records; and his record implies that the second of the three at all events did not take place. If he had recorded any of these things it must have been obvious to him that his sense impression was, in part at least, an inference from sense data, not a pure sense datum itself.

But I hope that our analysis will have convinced you, Reader, that the view, that his observation as recorded was a pure sense datum, is in any case untenable. Even if we regard it as a mere picture, and not as a formula, we must say that it was not all 'given', but was largely 'inferred'; whether by some conscious process of reasoning, or by mere trial and error, from past observations; such inference having since become so habitual as to be performed now unconsciously. But if we regard it as a formula, and not as a mere picture, we need not even say so much; the habit resulting from past experience need not now be regarded as resulting in any laborious process of inference, whether conscious or unconscious; we now regard it as resulting merely in a rule of thumb for the guidance of our thoughts, to be applied only if required, or in so far as it is required. In any case in which we do 'make to ourselves a picture', we do so, not for its own sake merely, but mainly as a convenient embodiment of such a rule of thumb; a substitute, if you like, for a rule expressed in language; a pictorial formula so to speak. Only it must not be supposed that such a substitute is either inferior, or posterior, to verbal formulas. On the contrary such pictorial formulae were doubtless in use by human beings long before the invention of language; as doubtless they are in use to-day, at all events by the more highly developed members, of the animal kingdom.

The example of a pictorial formula we have just been discussing was an auditory one; but the other special senses can also yield pictorial formulas, even though we may not be so familiar with them as we are with visual, or even auditory ones. I take the next example from the sense of smell, and, seeing that this sense is more developed in some animals than in men, it will serve at the same time to illustrate how animals may be conceived to make use of formulas. We say that a hound 'scents' a fox. The straight-forward, anthropomorphic, interpretation of this saying would perhaps be that the hound has in his mind a picture of the fox, which has been called up by the scent. Even so we must include in that picture some indication of the time element; we must say that the hound pictured to himself the fox 'as having been here', for example; but we have already decided to postpone the discussion of this modification of what we include in 'making to ourselves pictures'. And if we proceed to analyse the picture in the hound's mind, we see that it is not a mere sense datum; it has to be explained further; as by saying that the hound experienced a smell when he sniffed at a certain place; that smell he, from previous experience, associated with foxes; he therefore inferred that a fox had recently been in that place.

All this is expressed in what I may call 'pictorial' language, rather than in the language of formulas. May we not put it far more usefully in the latter language? We may take the smell 'fox' to be to a fox-hound a primary sense-datum, in the same sense that every modern philosopher takes the visual impression 'red' to be, to a man. But, when actually experienced, while drawing a covert, it is to him much more than this. It is to him a guide for his conations, a formula; and it guides him at once to 'whimper', at the first trial; and, if confirmed by the second sniff, it guides him to utter a full cry. Moreover, though the particular hound 'on the scent' may be the only one in the pack who smells 'fox', he succeeds in communicating, not that smell, or a mere picture, but a formula, to the other hounds of the pack. They all begin to move; at first towards the hound who whimpered, perhaps, but next

they turn in the direction that hound moved, from where he first whimpered to where he confirmed the whimper, so indicating the line of the scent; or perhaps they all move in the direction from one whimpering hound to another. Till, when the full cries resound the whole pack moves as a body, on the line of scent actually perceived perhaps by only one or two of them. Thus a formula is a guide to action, not merely to the individual mind first conceiving it, but one which can be, and actually is communicated from one mind to another; not only among men, by language, but by animals, and by means of more primitive kinds of formulas.

Even at the risk of wearying the reader, I must add one more illustration, this time of a tactile formula; because I think it will be found that very many philosophers and epistemologists seem to attach a peculiar value to tactile sensations, as giving direct knowledge of the external world; in some sense more direct, and less inferential, than that they conceive to be given by the other senses. I have never quite understood myself why they do so; but as they do, it seems to me important to adduce an illustration which discounts any such peculiar value. It is afforded by the experiment, familiar in all psychological laboratories, with the fingers, and the little pea. You shut your eyes, and the demonstrator places the little pea between the outer phalanges of your middle and third fingers, as your hand lies flat on the table. Your sense impression may be recorded, (1) as "A little pea, between my middle and third fingers". The experiment, I may say, is not always quite successful; particularly if you have been told what to expect, or if you perform it repeatedly. But if it is successful the record will stand as above; not as, say, "two touches, on the inner sides of the ends of my middle and third fingers". We go on to the second experiment; this time you cross the two fingers, with your eyes still shut, and the demonstrator again puts the little pea between them. If successful the record this time is (2) "Two little peas, with my middle and third fingers between them". For the third trial you keep your fingers crossed, but the demonstrator uses two little peas, and with each lightly touches the sides of the phalanges of the two

fingers which are now outside, that is those which normally lie close together. The record is now (3) " One little pea, as in experiment (1) ".

As I have said this experiment is not always successful, with me at all events. But I have on occasions perceived the so-called ' illusion ' with intense vividness, so that *prima facie* I should have had no hesitation in taking the record as a sense datum ; and when, on opening my eyes, I was convinced by the demonstrator that there had been only one pea, where I felt two, or that there actually were two peas, when I felt only one, I experienced that feeling of ' uncanniness ' which is the hall-mark of a formula which has become ' intuitive ', but which appears to have been upset. Our tactile sensations may indeed seem more ' intuitive ' in this sense ; they may be less liable to what we call ' illusions ' than sensations received through the eye or ear ; but the conclusions which common sense, or philosophy, founds upon them about the ' external ', or physical, world, are not a bit more ' given is sense perception', or a bit more apodeictic, than are the ' visions of my head upon my bed '. They are valuable only as formulae, to be judged by the usefulness or otherwise of their guidance of my conduct.

I must go on now ; but I hope I have succeeded in conveying to your mind, Reader, how I propose to use the word ' observation ' in respect to objective occurrences in the world of physical science. I do not know that Mr. Dunne's view of the matter differs materially from my own, but as I am not sure about this, my exposition here of his theory of ' serialism ' is only tentative ; I may be distorting more or less seriously the ideas he is trying to convey to us ; and I am even disposed to think that this must be so, inasmuch as I do not seem to reach the same conclusions as he does, in spite of my admiration of the lucidity with which he expounds his views, and my agreement with so much of his psychological analysis. But even if the theory of ' serialism ' I proceed now to discuss is not really Mr. Dunne's, I hope it will fulfil my primary purpose, which is to show the sort of difference it will make in our philosophy if we get into the habit of talking rather of what I call ' formulas ', than of mere static ' pictures '.

Mr. Dunne's theory of serialism depends upon our taking Time, to start with, as a 'fourth dimension'. We must not, I take it, say a fourth dimension 'of Space', or 'of the objective universe'; we must not even say that Time is a Space-dimension; but we might say that it was a Universe-dimension, or a dimension in the Universe, for clearly Mr. Dunne is here using the term dimension in the sense of a direction, or "*way* in which such a thing can be measured *entirely different* to all other ways" (p. 100). Considered as a symbolic definition of the term I am bound to say this is quite inadequate; but Mr. Dunne clearly does not intend it as such; he merely goes on to describe how the term is used in geometry by practical men in the street. Nevertheless, if only as an *obiter dictum*, for which it would not be fair to call him to account, he categorically states on the same page a little lower down, "Yet, theoretically, there may be an unlimited number of such ways, each at right-angles to all the others. Mathematicians think nothing of considering ten of them".

In effect therefore he makes "mathematicians" responsible for this *obiter dictum*, as well as himself; and with some justice, for I, at least, do not know of any mathematician who gives any purely symbolic definition of 'dimension', or who does not tacitly assume something equivalent to the statement that it is a direction, or way, 'at right-angles to all the others'. Mr. Dunne however seems to forget all this about right-angles, when he talks (p. 99) about the "man-in-the-street's imagined, but unchristened, fourth dimension", and thereby seems to impute obtuseness to mathematicians, down to the time of a Mr. Hinton (except some unknown friend of d'Alembert's), who did not imagine the same thing. I have not read Mr. Hinton's work, but there is nothing in Mr. Dunne's extracts from it to indicate that he overcame a certain difficulty about taking time as a fourth dimension; which the man in the street never thought of, and which it may be the mathematicians did. I think if Mr. Hinton had dealt with the point at all adequately, I should have heard of it; for only two years after the publication of his book I was at a meeting of the British Association at which the question of a fourth dimension came up; in

reference to a short paper I wrote suggesting that 'density' might be taken, not as *being the* fourth dimension, but as a means of diagrammatically representing extension, in what I called a fourth 'independent direction'. I remember being asked, by one of the great people present, why I chose Density, rather than Time? I replied to the effect that I did not see how we could conceive the turning of a direction in time into one in space. I might have added, though I did not do so, that 'I did not know what it would mean to say that Time was at right angles to Space'. I fancy that Newton did not, either; and that, I have no doubt, is why he did not anticipate the modern conception of "Space-time". The symbolic theory is not nearly so simple as the man-in-the-street imagines; nor, unless I wrong him, as Mr. Dunne does either.

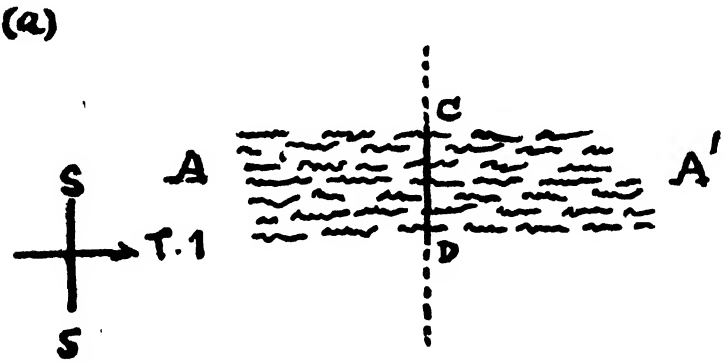
I can hardly attempt here even to give an outline of the solution of this problem which I reach by the purely symbolic Theory of Order. But to make what follows intelligible I must say this much. In that Theory I do not use the word 'dimensions' as a technical term; but I speak of 'groups, of such, or such, an order'; such 'groups', being purely symbolic terms, require to be given 'real import' before they can be said to represent any real things; but while arguing symbolically about them we need not consider at all whether there are any real things, either in the world of physical science, or in my 'Field of Presentation', which they could represent. In the symbolic theory we go on to make use of further terms, also symbolically defined; of groups as 'dichotomized by boundaries', which in general are themselves groups, of order lower by one; of the whole group, say of the fourth order, as constituted by a series of such boundary groups, of the third order, and so on. We might begin by trying to give these boundary groups of the third order real import as Spaces, of a series of dates in Time. But as Mr. Dunne points out, Space and Time are measurable; and the Theory of Order shows that measurement is something quite different from the mere 'passing in review', upon which the symbolic theory of series of special groups, so far discussed, depends; it depends not on the mere cataloguing of boundary groups in series, but on

cataloguing them by catalogues of particular kinds, which I call metrical, or numerical catalogues.

There are many different kinds even of numerical catalogues, of a group of the fourth order, in the symbolic Theory; but in the real application to Space-Time we have to reject them nearly all, for one pragmatic reason or another. The simplest of those which remain is the one I call the Lorentz catalogue; it is not at all like Mr. Hinton's four dimensional method of measuring up space and time, but it is precisely that which Prof. Einstein uses in his 'Special' theory of relativity. The equivalent of the man-in-the-street's crude imaginings, which I call the Newtonian catalogue, is not nearly so simple, it is indeed only a sort of 'limiting case', which could not be properly understood at all without first understanding the more general case of the Lorentz catalogue. It is this, and only this, which accounts for the fact, which ought to be obvious to the man-in-the-street, that we can not turn time extensions into space extensions; and that Newtonian velocities are only relative to one another, whereas this is not so in the Lorentz catalogue; so that the Newtonian catalogue is in this sense more entitled to be called the theory of relativity than is the theory of Einstein. I need only say one thing more about this symbolic Theory, namely that, in familiar phraseology, a Lorentz catalogue may be regarded as 'Newtonian in its smallest parts'; only that in this case the restriction of 'smallness' applies not only to lengths and times, but to velocities also; velocities being measurable by the catalogue adopted, in ways which the symbolic Theory works out in detail. The reason for referring to this point here is merely to endorse Mr. Dunne's action in disregarding, for the purpose of his 'serialism', the distinction between the Newtonian and the Lorentz catalogue; or, as the man in the street might put it, the difference between common sense and 'relativity'. He is quite justified in his action, provided he confines his 'Field of Presentation' within a small boundary, in space, and within a short period in time, and moreover discusses only small velocities, compared with that of light.

Mr. Dunne says nothing about Prof. Einstein's further theory,

the General Theory, so I am not bound to say anything about it here. I will however say just this much. So far as the theory is to be taken as merely symbolic, as a bit of pure mathematics, it might be embodied in the symbolic Theory of Order; the tensor analysis being just as much a part of that Theory as is the differential calculus, or arithmetic; though it may be that the methods peculiar to the Theory of Order afford no particular aid to the tensor analysis. But the most striking features of Prof. Einstein's General theory of relativity are not the purely symbolic ones, but the ways in which he tries to give real import to the tensor analysis, or at least to its conclusions. I think that these latter are open to discussion, if not to criticism; only this is obviously not the place or time to discuss or criticise them.



On page 102 Mr. Dunne gives a figure, which he introduces by the words " Here, then, is Hinton's idea, pictured in two dimensions, . . .", but Mr. Dunne's own idea seems to be practically the same.* The vertical line CD in his figure represents " this spacial position of field (of presentation) and

* He practically reproduces the significant features of this figure as his own, on page 132, Fig. 6(a) or Fig. 7(a). I confess that I do not follow Mr. Dunne's explanation of the difference between this and Fig. 6(b) or Fig. 7(b), in which the ' trend ' of the band of lines representing histories of objects, ' is slightly aslant '; but this does not matter much, as we shall not have to refer to the distinction again, at all events not as it is pictured here.

cerebrum"; (p. 129) while on the previous page he explains what he here means by 'field of presentation', thus:

> "Such a field of presentation, fixed with regard to the observer, and in which *conscious observation, condensed to the shifting focus called 'attention'*, is assumed to be taking place, is bound to be the starting-point of our analysis. (All readings of instruments are perceived as appearances within that field.) It must be remembered, however, that the field contains phenomena other than visual; it embraces, in fact, every species of mental phenomenon which, whether attended-to or not, is being presented for observation. It represents the observer's *outlook on Space*". (His italics)

I have given this quotation at length, because it seems to me very important; since if my own train of thought is not running parallel to that of Mr. Dunne, it very probably diverges here. Rather, however, than attempt to analyse the words in which Mr. Dunne here tries to guide my thoughts into parallelism with his, I propose to attempt to guide the reader's thoughts into parallelism with mine, hoping that to me this will prove the easier task. My interpretation of the figure in question may be explained thus. It is to be regarded as a diagram, or formula, which I hope will aid me in guiding my thoughts about the causes interfering with my mental states, in such a way as to ameliorate the latter. In this diagram the line CD is a symbol, or itself a formula, which may however also be regarded as a picture, of a selected few of those causes. This selection is made for the sake of simplicity, to ease the task not only of the draughtsman, but of the interpreter of the diagram. The diagram may therefore be regarded as a part only of a 'diagram of the fourth order', catalogued either by a Newtonian or by a Lorentz catalogue; a part which however is so small that the distinction does not matter (though this restriction also restricts the inclination to the perpendicular to CD, not only of the 'trend' of the band of lines AA as a whole, but of each wriggle in any one of those lines). But more than this. The diagram is restricted to the plane of the paper; and so must be regarded as a plane section only, of

the ' diagram of the fourth order ' corresponding to the space-time of the relativitists ; this section being so made as to include the time-direction (and its opposite) and also one, and only one opposing pair of space-directions, in the line CD. Various points in that line are regarded as giving the locations in space of a selection of the objects interfering with ME. The particular point representing the location of ME in the diagram is not particularly indicated ; but all the locations in CD are locations of the objects as they are believed by ME to be, *now*. In this sense I may speak of CD as representing ' space-now '. Whether or not we might actually construct, or actually conceive, the whole of a diagram of the fourth order is immaterial to our purpose, and to that of Mr. Dunne ; so we need say no more about it.

In all this I believe myself to be in substantial agreement with Mr. Dunne, and with the view taken by relativists of Minkowski's four-dimensional space, and its significance to the philosophy of space-time. But there are two observations I should like to make upon it before going on. In the first place it tacitly assumes that the ' histories ', or ' historical paths ', of objects thus represented in a diagram of the fourth order constitute, or might constitute, if natural science were more perfect than it actually is to-day, all we desire to know

* In his Fig. 7 Mr. Dunne reproduces his Fig. 6 with only two, very slight, modifications. In each diagram he gives a ' dimension indicator ' at the side, a pair of lines crossing one another at right-angles ; one marked S-S, a vertical line giving space-directions ; the other, horizontal, giving time-directions. In Fig. 6 this latter is marked T-T, and in Fig. 7 the left end is not marked at all, the right end however is marked T.1, and bears a little arrow-head. By this, if I understand him aright, Mr. Dunne means to indicate that although *Fig. 6 may be taken as a ' mere picture '*, Fig. 7 is in any case to be interpreted as a formula ; the arrow-head is put there to tell us to guide our thoughts in the way which I call, in the Theory of Order, ' passing in review '. We are to ' pass in review ' a straight line parallel to CD, from the left end to the right end of the band of lines, AA. This line parallel to CD, which we ' pass in review ' in the diagram before us, of the second order, would in a diagram of the fourth order be replaced by a ' three-dimensional space ' of a given date, or as I should prefer to express it, by one of a series of special boundary groups in the group of the fourth order. The ' current ' points in the line CD, or in the boundary groups of the third order in the diagram of the fourth, might, in the Theory of Order, as they passed in review, trace ' normal paths ' of the series of boundary groups ; to which we might give real import, as the ' histories ' of real objects in time ; histories which might thus represent those objects as either moving or at rest.

about them. To me this would mean all I desire to know in order to guide my conduct in the best possible manner; I should certainly not expect any such diagram of the fourth (or of any other) order to tell me anything about *Dinge-an-sich*; the very way I arrived at the diagram precludes this idea, for it was never anything more than a symbol, or formula. I may perhaps conceive myself to give it 'real import' referring to *Dinge-an-sich*; but in the last analysis I find that what I am referring to is not the 'existence' of the *Dinge*, but what they may do to ME, or what I may do to them. My diagram of the fourth order is only of use to me if I regard it as a formula, not as a mere static 'picture'. It is therefore only insofar as a phycist believes that it is possible in such a diagram of the fourth order, not only to infer, but to make use of, rules of guidance for my conations, that any justification whatever can be found for attributing to the diagram any real import referring to *Dinge-an-sich*, or to real, 'objective', entities, independent of my own thoughts about them.

My second observation refers to the difficulty Mr. Dunne refers to on his page 117, as to why "do all these time-dimensionalists, past and present, exhibit their physical 'world-lines" (what I here speak of as historical paths) "as extending *ahead* of that 'present moment' represented by" CD in the figure. The answer, very briefly, is that, if we did not do that, our diagram would cease to have any use. Its use is to guide *my future conduct*, not my past. I do not mean to say that we might not study past history without ever thinking of its lessons for the future. But it is obvious to common sense that even an absolutely perfect and complete history of the universe up to date would not be a philosophy of the universe; we should only be 'making to ourselves pictures' once more.

Well, then, I go on to ask whether in making to ourselves diagrams of the fourth, or less order, of which Mr. Dunne's figure may be taken as a type, we are doing more than merely making to ourselves pictures? Yes; we are; because Mr. Dunne has added that little arrow-head. He recognizes the need of something more than a real picture, of what I call a

formula. We can only read the whole diagram as a formula if we *pass in review* the boundary group representing space, from spaces-past, through space-now, to spaces future. But, to 'all these time-dimensionalists' as Mr. Dunne calls them, the making to themselves pictures is an inveterate habit, they are seekers after Knowledge, rather than after Wisdom; and sometimes Mr. Dunne himself can not escape from the inveterate habit*

I hope, and believe, that this is a fair translation of Mr. Dunne's theory into my own language, as far as it goes. But so far the theory might be exhibited as mainly, if not entirely, a symbolic one. When he goes on to try to give it real import, when he tries to persuade us that all these 'dimensions' which he calls serially Time 1, Time 2, and so on, are all dimensions of Time, I cannot follow him. I have tried to convey how I can interpret 'observation' of the 'field of presentation' at any given date in my history. I cannot interpret it as a mere picture; it is to me a formula, reached in part by conscious reasoning, but in part also, and a much more significant part, by trial and error. It is true however that such parts of this formula which, through long repeated habit, or perhaps through inheritance, have become automatic or 'intuitive', do appear to me to be mere pictures. I appear in such a case to have

* No sooner has he, in effect, recognized that the diagram of the fourth order, if taken as a mere picture, is inadequate, although it succeeded in dispensing with the conception of motion as a passing in review of objects in space, and so might be said to have reduced the conceptions of objects in spaces of various dates to mere static pictures; than he at once proceeds to attempt to reduce Fig. 7(a), which was perhaps (see however my first observation) a satisfactory formula, to another inadequate mere picture; by taking the diagram of the fourth order as a mere boundary group, in a series of special boundary groups in a group of the fifth order. Mr. Dunne represents a two dimensional section of this diagram of the fifth order in his Fig. 9, on page 140. He perceives that this process may be continued indefinitely; and as in turn he recognizes each new diagram as a formula, by his passing in review of a series of special boundary groups, of order (n-1), represented in it, he goes on once more to undo that recognition, by proceeding to take the diagram, which now is of order n, as one of a series of static pictures of that order; special boundaries in a group of order (n+1), in which they in turn have to be passed in review. And thus once more he finds himself confronted with a formula, not the static picture merely, which he had been taught to long for. His 'serialism' seems to me therefore to be due just to his refusal to stop content with a formula when he gets it, and to the inveterate habit of 'making to himself pictures'.

'intuitive knowledge'; and it is in this sense that so many philosophers, past and present, including perhaps 'all those time-dimensionalists', seem to prefer knowledge to wisdom; they prefer to make to themselves pictures, rather than formulas. But even if I had a desire to do the same, I could only talk of 'observing' the diagram of the fourth order, by interpreting it to myself as representing both past events, as they had been, so far as I am at present advised; and future events, as I expect them to be, in so far as the formulas I have accepted for the guidance of my thought enable me to judge.

Mr. Dunne in effect proposes to add to these accepted formulas; I do not say that he has enunciated any such new formula in precise terms, but it might be something to this effect, say "Among the ideas which come before my conscious attention without any conscious choice on my part, as in dreams or in reverie, some may be called memories of my past thoughts or sense impressions, but there are also others which may be called 'premonitions' of my future thoughts or sense impressions, in a precisely analogous manner". Only he also proposes something more than this; he proposes to elucidate such a formula by means of his theory of 'serialism'. Now it is conceivable that Mr. Dunne's book might call the attention of so many people, and call it with such powerful effect, to the occurrence of presumable premonitions, of the kind he describes, that not only would a belief in the occurrence of premonitions become common, but that it would become intuitive, just as is the belief in memories. And moreover it might be that the conception of a diagram of the fourth order, in which future as well as past events were conceived to be recorded, would also become so common as to be regarded as intuitive; just as now-a-days the conception of three-dimensional space is. But I fail to understand what Mr. Dunne means by saying that this diagram would be observed by 'observer 2', or 'observed in Time 2'. If the thing is only a diagram on paper, as Mr. Dunne's figures are, it certainly requires no second observer to observe it. But if Mr. Dunne means that the observer observes, not a mere diagram, whether in two dimensions or in four, but is observing *Dinge-an-sich*, of various dates, which

together constitute an objective group of the fourth order, we are brought back to the question How are *Dinge-an-sich* observed at all? The answer I gave before was in effect that they are only 'observed' as an explanation of their presumed interferences (direct or indirect) with ME, and MY presumed interferences with them; that explanation becoming validated by trial and error, because, and only because, it helped me to guide my conations to serve a purpose, namely to ameliorate my mental states, *in the future*. Whether therefore I conceive myself to be observing a diagram of three, or of four, or of n dimensions; or whether I conceive that group of order 3, 4, or n, to be an objective reality, and not a mere diagram; there is for me only one 'Time', one series of MY mental states, which I hope to ameliorate.

The dimensions of the diagram, as drawn, or as, and when, conceived, are not 'time-dimensions'. If it is only regarded as a diagram they may be said, for some purposes, to '*represent*' non-spatial dimensions, and one of them may represent Time; but it can not be said to '*be*' Time, unless while I am actually 'passing in review' the series of special boundary groups in that diagram. But when in this sense it 'is' Time, it is the one and only Time which 'is', for ME. Or, conversely, if I am not actually passing the diagram in review, then its dimensions are, if not spatial, at least not temporal either. In the diagram of the fourth order perhaps we may call the direction which represents Time (if we do pass in review), a space-direction (if we do not); but we shall have to distinguish it by some special name, say a 'Q-direction'. If we could by a process equivalent to the rotation of co-ordinate axes in geometry, change a Q-direction into a space direction and *vice versa*, there would be no object in maintaining the distinction between Q-directions and space-directions at all; we might say at once that if we do not regard our group of the fourth order as a formula, to be passed in review, but as a static picture, then it is a four dimensional space. It is however necessary to refer to the distinction here, because it so happens that in neither of the methods of cataloguing used by 'Time-dimensionalists', the Lorentz, or the limiting case, the Newtonian, can we rotate a Q-direction into a space-direction.

I am bound to say therefore that, as at present advised, I can not understand Mr. Dunne's theory of serial time as any help towards the elucidation of what at least appear to be premonitions, of the psychological character which Mr. Dunne so cleverly analyses. And I may add that it seems to me that the thing required to help me to understand Mr. Dunne, and also to understand most relativistic literature, would be more careful distinction between real and symbolic propositions, coupled with more precise explanation of what is meant by such terms as 'object observed' and 'observer'; terms, it will be noted, which are not purely symbolic.

III

ON THE CONCEPTION OF VALUE

I have now indicated the significance I attach to the distinction between real and symbolic reasoning, and to the accustoming of ourselves to thinking in terms of 'formulas' as guides to conduct, rather than in terms of mere 'pictures which we make to ourselves'. In this chapter I propose to pursue the same line of thought, and to show not only how it is capable of modifying profoundly our whole philosophic outlook, but how common sense has come to diverge from that very line of thought, after having started along it. And I reiterate here, though I hope there is no real need for doing so, that as pragmatists we are in no way bound to start at the beginning of the line of thought we desire ultimately to pursue. On the contrary, we start with the common sense explanation of the universe, as we use it in every day life, the justification for which is that, in the affairs of every day life, 'it works'. It is only by an analysis of this common sense explanation that we can hope to formulate anything like a scientific theory; or a philosophy which is anything more than mere verbiage, or the expression of mere vague aspirations. And it is only by an inverse synthesis, deducing from the ultimate analysis unexpected conclusions, which we can then submit to the test of trial and error, that this analysis, this scientific theory, or this philosophy, can be verified.

Let us then begin by considering a very famous formula, which, however, seems to me to suffer in its applications from a failure to distinguish clearly between real and symbolic propositions. How are we to interpret the formula "survival of the fittest"? Do we call the survivors 'fittest' merely because they survive, or does the term 'fittest' imply fittest for some other purpose? Until this ambiguity is resolved the whole significance of Darwin's life work remains in the

air, and what is generally accounted one of the greatest advances in philosophy made by the human race, remains a mere chimera.

For the purpose of analysis let me try to express what I take to have been Darwin's thought in a few words. He explained the Origin of Species (mainly) through the inheritance by the offspring of heritable characters from the parents, subject however to occasional variations; and the consequent survival in the struggle for existence of those individuals which had inherited variations rendering them 'fittest'. The question we have to put to ourselves is "What is the *definition*, i.e., the arbitrary part of the meaning, of the term 'fittest'", as used here? As has already been pointed out, we should be well advised in the first instance to take the formula as purely symbolic, i.e., in the language of the logical text books we should begin by taking 'ability to survive' as part of the connotation of the term 'fittest'. But if it includes no more connotation than that, the formula is a mere truism, a mere tautology; and although it does not quite necessarily follow from this that it is useless, it follows that it would be of practical value only in so far as the symbolic inference implied in it might be unexpected, by students considering the problem of the origin of species. In this case however the symbolic inference is of so simple a type that the conclusion could hardly be unexpected by anybody; whereas it is historically evident that it was unexpected, not merely by the theologians who vehemently rejected Darwin's conclusions, but also by the men of science and philosophers who eagerly accepted them. Neither of the parties to the great controversy really took Darwin's formula as a truism; the theologians indeed took it almost as a blasphemy; but the opposite party certainly accepted it as an important truth, even if they regarded it as one which might be arrived at independently of experience, as an 'axiom'. But the strange thing about the controversy is this: the men of science and philosophers of the deterministic school welcomed Daswin's formula because they hastily assumed that it would dispense with the conception of Purpose, or the interference of Free Will in the Universe, not realizing that it could do so only if it was reduced to a truism, a pure symbolic proposition, implied

by the definition of 'fittest'; while on the other hand it was a long time before it occurred to the theologians, if indeed it has occurred to any of them at all, that by reducing the formula to a truism they might accept it without any contradiction of their theological dogmas.

Now that the great controversy is stilled, except perhaps in certain remote parts of the American continent which do not matter, we may however perceive that the true significance of Darwin's formula, that which caused an universal recognition of its greatness, whether for good or for evil, lay in its tacit recognition of a Purpose implied by 'fitness', a purpose other than mere survival. Had this only been recognised at the time, had the parties to the controversy recognised clearly the distinction between Real and Symbolic reasoning, they would have changed sides in the contest; they would have perceived that Darwin's formula, by its recognition of purpose, was qualified to form the basis of a natural religion, and at the same time to upset a mere determinism as the basis of philosophy; the theologians would therefore have supported Darwin, and the determinists would have opposed him as a 'crank'.

It will be seen in a moment how relevant this illustration of a failure to distinguish between real and symbolic reasoning is to the subject of this article. I am now going to give an illustration of the inveterate habit we all have of 'making to ourselves pictures', and stopping there; of seeking after mere knowledge (even if indeed we get it) instead of after wisdom; and I feel sorely tempted to take for it the hypostatization of 'relations'; to which many modern philosophers are prone. If they would only make use of them as formulas, instead of persisting in making to themselves pictures of them, what a lot of confusion of thought, in our minds if not also in their own, they would save. But this would take us away from our subject, and our subject itself in fact forms an equally good illustration of the point. Modern writers are just as apt to hypostatize 'values' as they are 'relations'; and as indeed they are to hypostatize all sorts of 'abstract' terms, such as 'virtue', 'happiness', 'fear', and so forth. No doubt it is often convenient to do so, provided we bear in mind that it has been

done for convenience only; the danger only comes in if we forget this, and take our hypostatizations as having objective validity, as implying Truths, independent of my arbitrary choice.

Whenever you find an author spelling abstract terms with capital letters, beware of this danger, for it is imminent; even if the author himself is quite unconscious of it. Notably is this the case with the abstract term Truth itself; but here again I must not allow myself to be diverted from my subject. Only, when we return to the conception of 'value', instead of seeking for quotations from authors who have 'made to themselves pictures', to the detriment of their argument, it will be far more profitable to follow our own line of thought, while bearing in mind all the while that we are talking always in terms of formulas, for the guidance of conduct, and not of any hypostatized things in themselves.

The need for this caution presents itself at the very first turn. We are looking for an ideally simple example of a 'presentation', and what could be more natural than to take the example which has been taken by all philosophers from time immemorial, that of 'red', or 'redness'? But unfortunately this example is one which might have been deliberately selected because it is so easy to 'make to oneself a picture' of 'red'; nay more, even if we put it in the form of an abstract term, 'redness', it is almost impossible to avoid making to oneself a picture of it, even if one tries. This objection might not at first sight apply to the other example discussed in a previous article, namely 'motion', in place of 'redness'; but we saw that even in this example the tendency of modern philosophy is to go out of its way to reduce the conception of 'motion' to a mere picture, if possible. And in any case both these examples have a characteristic which for our present purpose is a drawback; both are concerned rather with what I call NOT-ME, than really with ME. In the example of 'motion' this will probably be obvious to everybody; and although this may not be the case with 'red', or 'redness' to all philosophers, or in all contexts, the fact that it may be so to some makes it a bad example to choose for our purpose, which is to elucidate the conception of 'value'.

The simplest example of a 'presentation' which I have come across appears to me to be the thought of something regarded as a mere symbol, to which an arbitrarily selected name can be given, just in order to help me to think of it again. Only to put it so is really to over-simplify it; I can not conceive myself as having such a presentation all by itself, or as thinking of it again without having thought in the meanwhile about any other presentation; nor would there be any purpose in naming it if it were not to discriminate it from other symbols, in such a way as to enable me to think of the symbols in one or in another *order*. That is to say the simplest example of a 'presentation' for our present purpose which I can think of, is not a mere picture, but is a formula; in so far as it may be conceived of as a mere picture, it is so conceived with the object of passing it in review, and so it has a purpose, to guide my thoughts in passing it in review. This sort of guidance for my thoughts, given by a formula, may be an exceedingly complicated matter; but in the simplest case, as in the one before us, we may analyse it into successive acts of choice, each between only two alternatives; and so we may say that the alternative chosen in each case is preferred before the other, and so that, under the conditions in which it is presented, that it has to me a greater *value* than the other. We may regard this as the definition of the term 'value', which, so far, is therefore a mere symbol; but if we now go a step further, and say that I preferred a particular alternative *because* it had to me a greater value, we are giving to the term 'value' a real import; an import which implies a particular attitude on the very real philosophic question about Free Will. This further step is therefore not an arbitrary one, I can not determine on it by a mere '*sic volo, sic jubeo*'. I must therefore put it forward, if I wish to do so, as an 'Explanation', to be tested by trial and error; in the same sort of way that I put forward the Explanation which I call the dichotomy of ME and NOT-ME.

As a matter of fact I do so put it forward; and this analysis shows that I ought to put it forward even before the great dichotomy; it might be put forward and discussed by a pure idealistic sol-ipsist, a consistent Bishop Berkeley, if there ever

was such a person. The only excuse I can offer for not having done so before is that in point of fact this Explanation differs in one material respect from the objective explanations upon which I regard physical science to be based; namely that I can myself put it to the test at any time without calling into play those objective explanations at all. If I say that a certain choice follows a recognition of a certain value *propter hoc*, and not merely *post hoc*, I can put this explanation to the test by mere thinking, without taking any objective action at all; and in particular I can put it to the test by thinking out elaborate symbolic arguments, such for example as my Theory of Order, or, in so far as they are purely symbolic, the arguments of pure mathematics.

In all such arguments, although I may lay down 'definitions' arbitrarily, that is not to say that I do so at random. Even if I name no reason for a particular choice in laying down an arbitrary definition, even if I can not myself think of any particular reason for it, even if I say I am doing so 'just to see what happens', that is quite enough to give the choice a 'value' for me, at the moment of choice. Of course mathematicians very generally have, consciously, or sub-consciously, other reasons for their choices of 'arbitrary' definitions; they may choose them in the hope that some particular kind of real import may hereafter be applicable to the symbolic theory at which they are working; they may only avoid saying anything about that prospective real import in order to keep their mathematics 'pure'; in order, that is, to make it equally applicable to any other real import which may thereafter be found for it. The course of development of pure mathematics has very generally been influenced by such recognition of the 'value' of one alternative definition over another; and it can not be insisted upon too strongly that such a recognition of 'value' implies the acceptance by the mathematicians of the further step referred to above, which made the conception of 'value' into an 'Explanation', not a mere definition, and which implied the philosophic doctrine of Free Will.

But if this is the case where mathematicians or philosophers more or less consciously admit of 'values' guiding their

thoughts, it is none the less so in those cases where they choose their symbolic definitions 'just to see what happens'. I may go further, and say that the phrase 'just to see what happens' expresses, not perhaps a 'picture', but a formula, having itself quite an extraordinarily great 'value'. The purpose may be to try this particular choice of a definition first, and to try the other alternatives afterwards; but even without any conscious thought of subsequent trials, the spirit which attaches value to doing things 'just to try' is the spirit which has *de facto* resulted in the progress of science and of philosophy; the progress not only of mere Knowledge, but in Wisdom also.

No doubt it is in the hands of wise men, rather than in those of mere fools, that this spirit is most often productive of great results; but it is well even for ordinary men to cultivate it; with luck they too may occasionally hit upon a fertile idea, and may succeed in bringing it to fruition; albeit to such a man it may need the labour of a lifetime, while in the hands of the man of genius it might bloom almost at once. I have already had occasion to refer to the 'kick' which the experimenter gets from a realised anticipation; and if that is not exactly the same as doing a thing 'just to try', the two mental processes have this in common, that both are looking to the future, both are thinking of future values, as influencing the 'present value' of a particular choice or conation; and both serve to draw attention to the fact that strictly speaking to talk of a 'present value' is a misnomer. We are conceiving of values as causes of conations, or of choices; but the conations or choices to be influenced have not yet been exercised, they are still in the future, while it is the results of those conations or choices, at least as much in the future, if not more so, which I desire.

It is only by hypostatizing the conception of value, by making to myself a picture of it, which I can look at at any time, by taking it, so to speak, out of its card-index, that I get into the habit of talking about 'present values'. I do not say that the habit may not be a useful one; on the contrary the pictorial conception of a value as something more or less permanent is of very great practical use; only when making use of it we

should always be careful to bear in mind that it is a mere picture, and that its real significance for us will only appear if we make use of it as a formula.

Now if we make to ourselves pictures, both of presentations, and of values, it will not always appear that a presentation has any particular value, present or future. For example, the presentation 'red' may have a present value to a bull, determining him to put his head down and charge the red presentation; but although psychologists have tried to attach certain conative values to specific colours for human beings their results are not universally accepted, or universally applicable; in those cases where they appear to be so the results would be much more intelligible if expressed in terms of formulas, rather than of pictorial presentations. If we try to do this it becomes apparent that in many cases the formulas become of extreme complexity; except in the simplest cases it is almost impossible to trace how a particular presentation, even if we recognize it as a formula, will affect the value by which a particular choice may be determined. Yet if we examine the simplest cases, and examine further the methods of synthesis by which slightly more complex cases are built up, and consider the extreme complexity which those methods of synthesis are capable of developing, we shall find ourselves presented with a problem bearing many analogies with the problem of the evolution of our explanation of the physical universe, and one which is no whit more complicated.

The result of such an examination is, however, not to reveal what is sometimes spoken of as a psycho-physical parallelism, but to show that, whether rightly or wrongly, many of our so called scientific explanations of the universe as carrying on independently of ME, or of my will, are borrowed from the way in which I explain to myself how my choices and conations are influenced by my estimates of 'value'. This fact is implicitly recognized by all modern philosophers and men of science, as is shown by the very efforts they make to fight against or ignore it; but if they could only get rid of the inveterate habit of thinking to themselves in pictures, rather than in formulas, they would perceive that it is not enough to hypostatize fields

of force; or picture them to themselves as bucklings of a four-dimensional space-time; even if in this way they could get rid of 'force'; or formulate a theory independent of any *particular* observer. They explicitly recognize that an observer somewhere, who can make observations somehow, is implied in it; and this conception of an observer observing is borrowed in the way I describe, even if no other part of it is so.

If I think of the sorts of things which most obviously have 'value' for me, in the sense that they determine my choices or conations, I do not first think of mere 'presentations', but rather of the states of feeling which we call 'emotions', or perhaps sensual pleasure or pains, of higher or of lower order, which I try to think of as far as possible apart from any information they may at the same time be giving me about the external world. I think for example of the sweetness of the scent of a rose, as far as possible without thinking of the presentation in my field of presentation, as a visual, or any other kind of 'picture'; but in so far as I think of it as a possible motive for action or choice, for sniffing at it, or for picking it, for example, the thought may be called an 'emotion'. Or more particularly a desire, since it is a pleasant one, to distinguish it from an aversion, such as I might experience in the case of some other kind of smell.

In general we may say that most elementary sense impressions have some emotional value, over and above any other informative characteristics they may have, upon which we may build explanations. We may in some cases be able to analyse a sense impression which was originally assumed to be simple, and so we may find in it more than one informative character, and also more than one emotional one; and the latter may some of them be desires and some aversions, and the net emotional result may therefore be a desire, an aversion, or a nearly neutral state of indifference, or doubt. For example, the sense impression we say is made by a rose will in general be more complex than a mere scent, and other aspects of it will have more or less emotional value; it may be red, but in this connection its redness will certainly have emotional value; it has beauty of form, which will make me desire it; it no

doubt also has a thorn, which might give me an aversion to picking it, and this might even prevail against an anticipated enhancement of a desirable emotion, which I might obtain by placing the rose in a bowl of water with some maiden-hair fern. But if the question is To pick, or not to pick, the rose, other and yet more remote considerations will generally come in. For example, the rose may not be mine to pick, and a gardener, or even a policeman, may be about. Or, the rose may be mine, but I may think how much more pleasure it would give, to other people, even if not to me, if left where it is, rather than picked and taken away; when it might wither even before I could put it into water.

Now it is natural enough for a philosopher, especially if he has a mathematical turn of mind, at this stage in the analysis to think of making himself some sort of symbolic, even if not exactly a mathematical or arithmetical, calculus of emotions; just as Bentham proposed to construct a hedonic calculus. He might, for example, try to estimate emotional values numerically, as credits or debits, and strike a balance in favour of desire, or of aversion. We shall find that, for some purposes, something like this can usefully be done; but I think it is quite a mistake, and is liable to lead to serious confusion of thought, to suppose that this is the sort of thing that the man in the street actually does, when he 'makes up his mind' about anything; or even that it would be possible for a philosopher to employ any analogous mental process, except under very special conditions, which do not obtain in most of the circumstances under which we have to come to decisions affecting our welfare. If I debate in my mind whether to pick the rose or not, I do not give numerical values to my emotions, or prospective emotions, and I do not do sums with the numbers so assigned. What happens is better described by saying that I pass in review the various considerations which might affect my decision, some favourably, and others the reverse, so that while I suspend judgment, at one moment the resultant emotion is for, and at another it is against; but in accordance with certain rules, formulas, habits, or principles, I inhibit certain types of consideration, and encourage others; and the state

of my emotion settles down to a fairly stable condition, on which I then deliver judgment; a judgment involving both verdict and sentence, even though, may be, the sentence is deferred. I might illustrate this in the case of my decision about picking the rose; but lest it might seem that I had specially invented this illustration for my purpose, I will instead take one with which we are all familiar, from the writings of an author* whose reputation as a poet means that he is a recognized authority upon human thoughts and feelings. You will remember that the Bold Sir Bedevere

> "gazed so long
> That both his eyes were dazzled as he stood,
> This way and that dividing the swift mind,
> In act to throw; but at the last it seem'd
> Better to leave Excalibur conceal'd"

That is to say, he came to his decision at a moment when the emotion resulting from the dazzling of his eyes was dominant, at a moment when his emotion appeared to be fairly stable, and when it 'seem'd better', not to throw. On the second occasion the way he passed the various considerations in review is described at greater length; as he

> "paced beside the mere
> Counting the dewey pebbles, fix'd in thought;
> But when he saw the wonder of the hilt,
> How curiously and strangely chased, he smote
> His palms together, and he cried aloud:
>
> 'And if indeed I cast the brand away,
> Surely a precious thing, one worthy note,
> Should thus be lost for ever from the earth,
> * * * *
> What good should follow this, if this were done?
> What harm undone? Deep harm to disobey,
> * * * *
> But were this kept,
> * * * *
> Someone might show it at a joust of arms,
> * * * *
> But now much honour and much fame were lost'.
>
> So spake he, clouded with his own conceit,
> And hid Excalibur a second time".

We see here plainly that he is not weighing up the values of different emotional states; it is his emotional state itself, as

* Tennyson; Idylls of the King; "The Passing of King Arthur".

he passes the different considerations in review, which varies. Had he stopped and delivered judgment when the thought occurred to him 'Deep harm to disobey', had he inhibited the return to the thought 'much honour and much fame were lost', he would have thrown the brand at once; instead of which he was 'clouded with his own conceit', whose emotional value guided his actual conations.

On the third occasion he did inhibit any return to 'his own conceit', by running, and leaping down the ridges—

> "and clutched the sword,
> And strongly wheel'd and threw it".

He did not on this occasion make up a new balance sheet, adding on one side of it an item of fear, lest Arthur should arise and slay him with his hands. He says himself—

> "'I closed mine eyelids, lest the gems
> Should blind my purpose, * *
> * * * *
> Then with both hands I flung him, * * "

He inhibited all other considerations than that prescribed by the habit, or principle, of duty; hurrying lest this thought, impressed upon him by Arthur's presence and words, should have time to fade from his mind. His action finally was not determined by an emotional calculus, it was not decided by a balance; but by the acceptance of the guidance of a 'principle', or habit, which had been formed in his mind by his experience, or training, as a soldier; or, let us say more generally, as a gentleman.

Now this 'inhibition' is of just the sort which is recognized by modern psychologists, led by Freud; only it will not be necessary for us here to pursue it into the ramifications of Psychoanalysis; we have only to consider it in its simplest manifestations. Nor is it at all necessary to suppose that the Mind has power only to inhibit, and not to initiate, thoughts, or trains of thought. It may be the case that sometimes it is simpler to explain the apparent initiation of a train of thought as indirectly caused by the inhibition of another, but it may in other cases be the other way round. It is, for example, an easier explanation in the case of Sir Bedevere to say that he

indirectly inhibited thoughts of the gems, by directly fostering thoughts of duty, and by objective conations, such as running, and closing his eyelids; rather than to say that he actively inhibited thoughts of gems; since for him to have done so would indeed have itself been a thought about the gems, which possibly might have defeated the attempted inhibition.

A point more worthy of discussion is how we are to conceive the principle or habit, on which Sir Bedevere's direct or indirect inhibition was based. We should speak of it as a 'principle' if it was, more or less consciously, present to his thoughts at the moment; if we conceived it so, we should regard his adoption of its guidance as a voluntary act of choice; and we should therefore say that the principle was held by him to have value. On the other hand it might be in some cases that a man's conduct was not determined by any principle of which he was conscious, or to which he could, if asked, attribute a value; while yet he would recognize that he was in fact following a formula, or rule of action, which might be put into words. In such a case he would say his conduct was guided by a 'habit'. In the case of Sir Bedevere we should clearly be justified in speaking of him as acting on a 'principle'; the idea of duty was actually present in his mind, and he did attach value to it; the idea was present even on the earlier occasion, when he said 'great harm to disobey', only on that occasion he did not attach value to it, he drove the thought out by another, before coming to a decision. The casuistry in which he indulges, about the King being sick, seems however to indicate that under more normal conditions there would have been no need for him to appeal to any principle of Duty, the mere habit would have sufficed to guide his conduct, and he would have flung Excalibur into the middle mere, without thinking about any high principles. It appears then from this illustration that in some cases, if not in all, habits may have arisen from the mere lapse into unconsciousness, of principles frequently applied; and we may at all events provisionally accept this explanation of them, until it is found to be in some way inadequate. We have however two questions about principles and habits to consider; the first is—How do

I come to attach value to the sort of formula I call a ' principle ', and so come actually to guide my conduct by it? The second is the question propounded by the late Dr. W. H. R. Rivers, " Why is the Unconscious unconscious? "

As to the first question it must be noted that by a ' principle ', as the word is used here, I do not exclusively mean to refer to high moral principles, like Duty, in the illustration just given; though such are very good examples of what I do mean. Whenever I act upon any formula to which I attach a value, without consciously picturing to myself the benefits or desirable emotions which in this case action on the formula may be expected to produce, I may be said to take that formula as a principle of action. The formula, by the way, may be expressed in words, or in some other form of symbolism. A talking man, for example, may value and apply the principle ' tit for tat ', and so may a man of action, say a boxer. The former might however express it in many words, as " an eye for an eye, and a tooth for a tooth ", while the latter might act without thinking of any words at all, and yet have in his mind some kind of pictorial formula in which he represented himself, to himself, as hitting back any fellow who hit him. I have already tried to explain how my mind comes to form for itself explanations of the changes in its mental states, these explanations being what I call formulas, which are stored in memory, ready for use at some future date, for the guidance of my thoughts, if not of my objective acts. Such of these formulas as are accepted by me as of permanent value, to be made use of as such without further argument when the occasion presents itself, may be called ' principles '.

The method of acquiring such principles is in the main dependent on trial and error, but it would be stretching that elastic formula quite needlessly to look for an experimental basis for every principle I accept as of value. Even among the cases which are directly and obviously founded on experiment or observation, comparatively few are founded only on my own experience; in most cases I take the word of other people, and take their experiences, though perhaps with certain reserves, for my own; as the child might do when told that ' The burnt

child dreads the fire'. In many cases also the acquiring of principles is aided, or sometimes hampered, by other methods of reasoning than mere trial and error; some of these methods meet with the full approval of philosophy and science, although we may class them as subsidiary methods only; but others, though specious, seem open to doubt, and yet others would be generally condemned as fallacious, and the principles they inculcated would be regarded as mere superstitions. Moreover there are many principles which we acquire by mere precept, or example; perhaps most of those acquired in childhood come under this category. I may be said to have accepted the formula "William the Conqueror, 1066" as a principle, for the guidance of my thoughts, even if not of my acts, without thinking about any trials or errors, made either by myself or anyone else; I accepted it, like a good boy, 'because I was told'. On the other hand I do not know that I was ever told the proper way to blow my nose, nor the reasons hygienic, or other, prescribing the function. I simply imitated my elders. Again, some principles may have been accepted in the first instance by reason of precept backed by threat of punishment, so that at first it was that threat which gave them their value; but the principle once accepted continues to hold good, very often after all thoughts of the associated punishment are forgotten; and it then appears as having a value of its own. We may thus hope that the precept 'Do not spit' will in time become a universally accepted principle, and that by that time the associated threat, 'Penalty 40/-' will have been forgotten. Nay, more, we may hope that it will become a universal habit, the precept itself being no longer required, except perhaps in the nursery.

But it may be objected that all this is rather a description of what occurs, than an explanation of it. It does not explain in any one case why a principle should have value to ME, any more than it explains why the scent of a rose should have a value, as a desire or as an aversion. At best it only explains how the values, in more complex cases which we call 'principles', arise out of the simpler ones which I here call 'emotions'; or which we might call 'feelings', as that word

is used in psychological literature, with the added connotation that the feeling is capable of guiding conduct. That I do have 'feelings', and that in some cases they are capable of guiding my thoughts, if not my objective acts, is however an assumption which lies at the root of the common sense explanation of the Universe; which is the sort of explanation called philosophic pragmatism. The assumption implies not only that I think various things in an order of succession, but that I can, and sometimes do, think of those things again, i.e., remember them; and this time in the same order of succession, or in a different one; that sometimes I attach a value to the one order of succession, rather than to the other, and so I am said to *choose* the order in which I shall pass them in review once more. This is, of course, an ideally simplified illustration of a 'choice', and in the course of our simplification we have got away from the illustrations where the value guiding our choice is most pungent, namely in instances of powerful sense impressions, the scent of a rose, or the prick of a thorn. But the illustration may be the more valuable to us for this very reason; it emphasizes the fact that conduct is often guided by values which in themselves seem almost insignificant; but which owe their efficzcy to the frequency, or almost universality, of their operation.

One such we have already noted, the desire 'just to see what happens', which may develop into vulgar curiosity, but is also one of the chief forces to which the evolution of mind is to be traced. And we must here note another, which is very nearly akin to this one, namely the desire for power. I may choose to do a thing merely in order to have the satisfaction of saying 'I did it'. I may choose to work out the value of π to 700 places of decimals, by a laborious symbolic argument, merely for the joy of feeling what a powerful mathematician I am. And this desire for power is not only very universal in its operation, entering into almost every debateable question which arises in every day life, but it frequently becomes one of the dominant motives for conduct, not merely for individuals, but of organized bodies of men and women. After the desires for food and sex, or even before the latter, the desire for power must be reckoned among the most significant of human

emotions, affecting the happiness of individuals and the destinies of races more than almost any other.

Thus the craving 'just to see what happens', and the desire to say 'I did it', inspiring as they do the love of gambling, and the lust for power, trifling as they may seem in their origins, are in effect among the most potent guides to human conduct. Principles founded upon them may not individually appear to have high value in most cases, even though they do in some of them; we are therefore inclined to ignore their operation in the affairs of every day life, we do not take the trouble even to make 'pictures' of them or to sense, or estimate, their values. Yet in a general way we are ready enough to recognize their operation, and to explain it to ourselves in pragmatic fashion by Darwin's Law of Survival of the Fittest; for it is clear, in a general way, that the operation of curiosity, dignified as the desire for Knowledge (with a capital K), and of a love of power, euphemistically called a love of Work, have helped the human race to survive.

The same applies in an almost greater degree to another great principle, of equally general application, which manifests itself broadly as 'gregariousness'. Like the two already mentioned, the operation of this principle, in a general way, is observable not only in the human race, but in those of many types of animals, and even insects; in herds of cattle, packs of wolves, swarms of bees, and so on; and like them it finds a superficial explanation in Darwin's great formula. But for our present investigation that explanation is superficial only; in the first place because the explanation itself assumes a whole complex system of explanations, as to how I 'observe' the world of physical science, the world of the species whose Origin Darwin was seeking to explain; while none of the explanations of that complex system would ever have come into being without the desire for Knowledge, the love of Work, and the cooperation of other minds.

To us as pragmatists this objection does not indeed rule Darwin's formula out; but it indicates the need for a further analysis of it; we have to probe deeper. And this need becomes obvious as soon as we try to apply the three principles we are

discussing to any but race-problems; to any instances in which I can trace the origin of a principle in my own mind; or to any in which it is not already something more even than a habit, namely an inherited instinct. The most conspicuous instances of this kind are perhaps afforded by what we call 'games'; by principles of the kind called 'rules of the game'.

The distinguishing feature of such principles is that the rules laying them down are more or less *arbitrary*. In some cases they may be said to be completely arbitrary, and the games may be called 'symbolic theories'; in such cases it is not necessary to bring in any explanations of the objective universe at all; we are dealing with what in all probability Kant was thinking of as '*reine Vernunft*'. In the more ordinary games of every day life however the rules of the game are not completely arbitrary, or are arbitrary only subject to certain well understood restrictions, which involve the objective explanations of physical science. For example we may have various sets of rules for the game of football, the Association rules, or various sets devised in one or other of our great Public Schools. Within limits therefore we say that the rules of football are arbitrary; but all of them are bound by certain objective possibilities, implied in the explanations on which my 'observation' of the world of physical science depends. We could not, for example, make it a penalty for breach of a rule that the ball was to be kicked over the moon.

So, in framing the rules of chess, we are acting only in a 'quasi-arbitrary fashion'; even if the limitation of the number of squares on the board is regarded as an arbitrary rule (there is an excellent game of noughts and crosses in which there is no such limitation), there are well-understood geometrical limitations involved by having the chess-board ruled in squares at all. Now if I am myself laying down the rules of a new game, it may be that at first I do not regard one of the rules as a 'principle', having an intrinsic value of its own; I may merely endue it with a fictitious value 'just to see what happens'. If the game was invented by somebody else its rules may not appear to me to have even this sort of fictitious value. Must I, in the interests of philosophy, confess

that this was the case with me, with respect to the rules of golf, the first time they were explained to me? Though, even in the interests of philosophy, I would never confess that they remained so, after I began to play the game. Of course there are good games and bad; and in this respect, as in others, tastes differ. But as soon as I begin to play a game I at least attach to its rules the value as principles suggested by 'just to see what happens'; and as soon as I begin to 'fancy myself' at the game, even if I have not yet won a game against any opponent, I picture myself in the future as scoring a victory, and being able to say 'I did it'.

In some games, the best of them, I ascribe to the rules as principles of action a further value, derived from the conception which hitherto we have referred to as 'gregariousness', but which we may now recognize as something more intimate. It is not explicable as a mere abbreviated formula representing benefits to come from co-operation with others; it goes deeper than that, it is I think only to be explained as a joy arising in its simplest form from the mere realization of the fact that I have got into communication with another mind. Such expressions as 'the communion of saints', or for that matter the communion of sinners, say for the purpose of '*Weltmacht oder Niedergang*', are not mere metaphors; they represent psychical syntheses every bit as real as the syntheses of electrons and protons into atoms, which form the latest 'discoveries' of modern science. We do not all of us feel the added value given to a game by the inclusion in its rules of this principle of synthesis; which however is explicitly recognized now-a-days, and referred to in popular literature as 'teamwork'; or at least we do not all of us feel it in an equal degree. But when the realization does actually come to one of us he will admit that it brings with it an emotion of an exhilarating quality, and an extraordinary intensity, which in itself is worth living for.

If there is anyone who has never felt this, it is perhaps only the occasion that has hitherto been missing from his life. He might, for example, have been born after the Great War was over, brought up in a slum, where he never

even played games which were not purely selfish, merely dreaded his parents and teachers, if he had any, and envied and distrusted all his fellows, not having yet arrived at the age to 'fall in love' with any girl. But even such an unhappy being must have observed the 'behaviour' of other people who were influenced in their conduct by sympathy; the education he had received, or the want of it, might indeed be just what would incline him to 'behaviourist' views; if a Sunday-school teacher told him anything about the joys of sympathy with, and giving help to, others, he might reply "Yah!", rather than 'yes'. But we, who have felt the joy of sympathy, and appreciated the value of the emotion aroused in each one of us by the thought that we were acting *together*, 'as one man'; nay rather the feeling that, for the purpose in hand, we *were* one organism, one in mind, if not in body; *we* cannot pretend to be behaviourists, and nothing more. Behaviouristic explanations of human, or of animal, conduct, are to us only superficial, for we recognize that they rest only on 'observations' of physical motions, while those observations themselves depend on my regarding the physical motions as explanations of changes in my own mental states, i.e., explanations which themselves are not behaviouristic. On explanations, that is, ultimately resting on the conception of 'values' to ME, which determine MY choices, or MY conations.

I must now go on to say a few words about the second question, "Why is the Unconscious unconscious"? Since the question was first propounded in this form by Dr. Rivers it has been a great incentive to psychological discussion; and its answer, or answers, may for most purposes be found in current psychological literature. For our immediate purpose here we may however say, in the first place, that, on the Darwinian principle, it is obviously of advantage to the race that the human mind should not be overburdened by conscious thoughts; there would not be time for all of them; and a power, or faculty, having once arisen, as a variation, say, in inherited mentality, whereby the mind came first of all to attach value to, and to experience pleasure in conforming to, 'principles' (i.e., certain kinds of formulas), such variation

would tend to be perpetuated hereditarily, by the survival of the members of the race in which it arose.

Even this much would effect a saving in time, and so enable conduct to be better guided; and even at this stage we see that part of the 'reasons' which common sense regards as guiding my conduct, have lapsed into unconsciousness, being replaced, not by a contemplation of mere emotional pleasures to come, but at most of intellectual pleasures, as it were, attached to principles. But when a consciously adopted principle lapses into a mere habit, to which effect is given automatically, I am not aware of anything like 'value' guiding my action, the 'formula' too has lapsed into unconsciousness; and a further economy of time is realized; which also may be perpetuated in the race, by inheritance and survival of the fittest. In this way we may conceive that not only habits, but inherited instincts as substitutes for principles, may be regarded as principles which in course of time have lapsed into the Unconscious; as formulas which may be said to guide my choices and conations, but without any conscious intervention by ME; and that this should happen will obviously be in some cases of advantage to the individual, and to the race. But it is also obvious from this explanation that there might be cases in which the lapse into unconsciousness of a principle might be a disadvantage, since it would make it impossible, or very difficult, for the individual to re-consider or amend the principle, or habit. This, in very rough outline, is the behaviourist answer to the question "Why is the Unconscious unconscious"; but as before, we have to probe deeper; if only because it would not explain the daily and hourly lapses into unconsciousness, of principles into habits, of emotional ideas into principles; which I can observe directly in my own consciousness, and which go on without waiting for any survival or otherwise of my body.

I do not say that a strict behaviourist can not get over this difficulty, by talking about synapses, and things presumed to go on in the grey matter of my brain; as long as he is so *talking*, things go merrily enough. Only it does not happen to be these presumed objective happenings which I desire to explain;

they are of use to me only if, or so far as, these objective happenings serve to explain to me the subjective changes in my own mental states, which alone I can directly observe. *Prima facie* the trials and errors on which my explanations are based are subjective, to ME, and, *prima facie* at least, my explanation will take the form, not of an objective formula dealing with the survival of the human race, but of a subjective formula dealing with the survival of 'principles', in the struggle for an explanation of my own conscious states; and so dealing with my power of controlling them. In this sense therefore the formula 'survival of the fittest' may be applied subjectively; and the term 'fittest', as here used, will have real subjective import as a desirable emotion, though it may be either of a sensual or of an intellectual character. Just as Darwin's formula 'survival of the fittest' implies objectively inheritance, variation, and inheritance of variations, so, subjectively, does the formula as here used imply a memory for formulas, a trying of them over again with variations, and a memory of those variations and the results of those trials; the final adoption of the most successful variation giving effect to the value it has to me acquired through its successes.

So far, then, the explanation is purely subjective, and not at all behaviouristic. But the fact that I can not in this way explain to myself all my conduct, even in the guidance of my own trains of thought, is one of the reasons, if not one of the chief reasons, for my seeking a further explanation by the dichotomy of ME and NOT-ME. I find not only emotional 'sensations' entering my consciousness without my leave, I find I can not always control even my pure thoughts; I find myself 'jumping to conclusions', by no recognizable process of reasoning; I 'intuit' conclusions, and very often I find these intuitions better guides for my conduct than my reasoned principles.

I may attribute this to the action of my 'unconscious self'; but only in the same way that I attribute the presumed interferences with me of some other man to that of his mind; in this sense therefore my 'unconscious self' is no more part of ME than is your mind, Reader. In another sense, it is true,

I may regard my conscious and unconscious selves as being 'unified', for common purposes; but this sense is to be regarded as analogous to the 'communion of saints'; it may indeed be a very useful pragmatic truth, but it is arrived at only indirectly, by way of the great dichotomy of ME and NOT-ME, to say nothing of the further dichotomies and explanations involved in the scientific view of the physical world and its inhabitants. But, even without any of these objective dichotomies or explanations, without assuming an Unconscious for ME at all, I am bound to begin with an explanation of how I come to formulate, and to attach value to, principles, which I use consciously, before they have lapsed into habits; this explanation being in form closely analogous to Darwin's 'struggle for exixtence'. And although, after the great dichotomy, and after the scientific study of the grey matter of the brain, etc.: if I can substitute an objective explanation for the subjective one, it may for many purposes be more convenient; even though it does not explain the interaction of matter and mind; we must always remember that such explanation is incomplete, and only provisional, until that interaction can be taken into it. For without such interaction, however much the objective things might 'be there', I could not possibly know anything about them.

To recapitulate: the term 'value' in the technical sense I give to it here is psychological only; I may apply it directly to MY sensual emotions, or to MY intellectual formulas which I use as principles of choice or action subjectively; and I may apply it indirectly to the emotions or formulas which I believe to be entertained by some other conscious mind; but only in so far as I believe that other mind to be 'conscious', and to have a will of its own, as I believe MY mind as being, and having. If, or in so far as, we regard the Unconscious as really being unconscious, the technical conception of 'value' takes no part in any explanation of its presumed operations. Such explanations may proceed on various lines; such as the line suggested by Dr. Morton Prince in his study of 'Sally B.', in which her mind was conceived as dichotomized into two (or more) streams of consciousness, functioning alternately,

or even sometimes simultaneously. To each stream of consciousness the explanation of the other would be closely analogous to, even if not exactly equivalent to, its explanation to itself of the mind of another person; but a problem would arise to either of the divided streams of consciousness, as to how a stream of consciousness can be dichotomized, or by what sort of synthesis it may be re-unified. This problem seems to me to be of the very highest philosophic significance; the conception of a possible synthesis of two or more minds is frought with tremendous possibilities; though we can not go on to discuss them here.

Another line of explanation might take the Unconscious to be really unconscious; and, stopping short of complete behaviourism, would take the operations of the Unconscious self purely behaviouristically, even while admitting that this still leaves MY consciousness unexplained. With a system of explanations of the former type therefore we could speak of values 'to the Unconscious', just as I could speak of values 'to you'; with one of the latter type, or with a purely behaviouristic one, we could not however speak of values to the Unconscious at all, in the technical sense here defined.

There is just one thing more to be said, to clear up this technical conception of 'value'. I have already indicated some of the difficulties in the way of making a calculus of values, in pointing out that in general this is not the way the man in the street follows, in coming to a decision. But on the other hand the man in the street does frequently talk about values in a way which implies some sort of calculus; he talks not merely of values as greater or less, he talks of one value being double, or only half, another. When he does this, however, he is not using the term in the technical sense I have here defined; he uses it ambiguously, and it is to clear up this ambiguity that I have devoted this chapter. This consideration however inevitably leads us on; I have only cleared up one side of the ambiguity; in another article I shall be bound to try and clear up the other, and to analyse what the man in the street understands by the other concept, which he also calls 'value', but which may form the basis of a calculus.

IV

ORGANIZATION

It is a commonplace of modern philosophy to say that our knowledge of the world of physical science depends on observation and experiment, and in the previous articles of this series I have tried to point out how intimately both observation and experiment are bound up with our subjective appreciation of 'values', and with our explicit recognition of my 'free will' as an agent in these processes. In doing so I hope I have succeeded in making it clear that what I call observations are not mere pictures, but are formulas; explanations to ME, by which, directly, or indirectly, I hope to be able to guide my conduct the better. They are in fact the raw material for further and more complex explanations; but the raw material is essentially the same in character as is the more finished product, which is said to be 'deduced' from it; scientific 'observations' are no more 'given', directly, than are hypotheses founded on them; though in many cases they may be 'taken' for granted, for the purpose in hand. It would however, in my view, be apt to lead to confusion to call that purpose in hand the mere love of Knowledge, to make a mere picture of it; rather we should claim that the general purpose of science and philosophy is to obtain control of events, as far as this may be possible for human beings. And from this point of view we should, among the three types of 'values' we discussed more particularly in the last article, select the love of power as the most significant. The emotion of curiosity comes in too; particularly in what we call 'experiments' rather than mere observations; and no discussion of the methods of science could pretend to be adequate which left out of consideration the ways in which the love or power is modified and broadened by the operation of sympathy, and of communion between minds. If therefore in this article I appear to refer primarily to the value 'love of power', I must not be thought

to be doing so exclusively. On the contrary, as the title I have given to the article shows, I have mainly in mind the ultimate use of this value in organizing pluralities of minds into human organisms, unified for this, or for that, purpose; it is the abuse, not the proper use, of the love of power, which is deleterious, both to the individual mind, and to the human race generally.

There is however another aim which I also have in mind in selecting the love of power as a value for closer analysis. I referred in the last article to the possibility of making a 'calculus of values', and I implied that with our technical use of that term it could not be done. Not only is it that the man in the street does not ordinarily do anything of the kind when he has to come to a decision, but in those cases in which he may think himself to be carrying out something like a calculus of values, he is using the word 'values' in another sense than the one I have defined here. To make this clear I am bound to say a few words about the symbolic Theory of Order, for which I must apologise to the non-mathematical reader, and to the mathematical one perhaps even more. For though no doubt it would be possible to paraphrase what I have to say, or most of it, into the language of ordinary mathematics, which might possibly make it easier for the mathematician, I feel no certainty as to this; whereas I feel pretty certain that the paraphrasing would make it more difficult for the non-mathematical mind.

In order to get rid of the merely verbal ambiguity, let us talk of the kind of calculus the man in the street thinks about, as a calculus of 'motives', instead of one of values. It will then be plain enough, I take it, that his motives must be things which form a group, which can be passed in review, in accordanc with some sort of rule of contiguity; that is, we must be able to think of different motives, discriminate between them, and be able to think of them in some sort of order, so that after thinking of a particular one we think next (in theory at least) of one or other belonging to a certain contiguous boundary group (or pair). In general, if the whole group is of order above the first, the units contiguous to a given unit form a

boundary group, of order one less than that of the whole group; and we discuss boundary groups in general, of which contiguous boundary groups to single units are only special, and 'limiting', cases. And we go on to discuss whole classes of special groups, in the whole group, of all orders less than its own, which have the connotation that their mutual intersections are also all of them special groups, if of order above zero, i.e., if they are groups, and not pairs only, of single units. The next step is to discuss how, by a class of special groups, it is possible to 'catalogue' the whole group; i.e., to give (in theory) a name to every unit in it. This is done so that the whole group is represented as a series of contiguous special boundary groups, each regarded for the purpose as an unit of thought; and so the series is passed in review as a group of the first order of such units of thought, though these are each of them actually groups of order (n-1).

Now of the group of 'motives', considered by the man in the street, he would almost certainly say that it was a group of the first order only; he would be thinking of any one motive only in respect of its supposed 'magnitude' (however he may conceive that term to be defined, geometrically or otherwise), as equal to, greater, or less than, any other, for the purposes of his calculus. He would therefore be apt to think that no question of classes of 'special' groups could come into his calculus; the boundaries with which he had to deal being not groups at all, but only pairs of units, even if not only single units; and as such any pair of units would function, without having any such connotation as 'special'. I can only say here that this is a mistake. The theory of Order shows that the kind of metrical, or numerical, catalogue, by which the man in the street would expect his calculus to be performed, is only arrived at by the adoption of certain rules of thumb, or what we have called 'principles', over and above those employed in the mere 'cataloguing' we have so far described. These additional principles however do not make their appearance in a group of the first order only; it is only by considering groups of higher order, and the ways in which we can first 'catalogue', and then 'order', them, and lastly adopt for them 'transfor-

mation systems', that we can come to understand what is meant by a metrical, or numerical, catalogue of the first order; regarding such as particular cases only of the more general theory. Thus in the case of the particular calculus we call 'arithmetic', dealing with the sort of symbols we call 'numbers'. Although we might give real import to it in a group of motives so far as the mere distinction of whole and part, is concerned, or that of greater and less, *so long as the less is a part of the greater*, we can not talk of addition, even, without this qualification, and we can not go on to multiplication at all. To get beyond this stage we have to introduce a new 'principle', that of 'transformation' (the geometrical analogy to which is, roughly, Euclid's method of superposition); and in the case of arithmetic this new principle comes in in a particular form, which is a 'limiting case' only; just as Euclidian geometry is only a limiting case of meta-geometry, and as the Lorentz catalogue is a 'limiting', while the Newtonian is a doubly 'limiting', case, of the more general forms of catalogue which might be given real import as space-time.

Now let us see how this symbolic argument applies to the real import of psychological 'values'. In point of fact the essence of the difficulty is just the converse of that experienced so often, when we make to ourselves mere pictures without going on to regard them as 'formulas'; the difficulty is just that these psychological 'values' are not formulas, but mere pictures; each one of them is not a group which can be passed in review by ME, while I am appreciating it. I do not arrive at my appreciation by analysing it; to ME it seems an individual, and unanalysable. I might perhaps conceive of the whole assemblage of psychological values to ME, as constituting a group, which I could pass in review; in accordance with some rule of contiguity, which I might ascertain by experience, and which was not therefore a symbolic rule merely. I might perhaps conceive that group to be one of the first order; which I might represent to myself diagramatically by a line, on which I could represent values by terminal points of stretches from a given point, say from one called zero, or O; desires being represented by points to the right, and aversions by points

to the left of *O*; and to the former I might give capital letters as names, to the latter small letters. I could then represent the relative importance to ME of two desires, or two aversions, say of the desires represented by M and P, by the fact that OM was a part of OP; and so I might say that the desire P was 'greater' than the desire M; only in this way of talking the word 'greater' does not really convey the conception of magnitude, with respect to values. For example, MP is also a part of OP, and as such we may say that OP is greater also than MP. But MP does not, in our diagram, represent a value, though M and P each represent values, with reference to O. I could not represent a value by the stretch from *O* to M, or from *O* to P; for that would make a 'value' into a formula, a passing in review of a group, and 'values' are not so given in my experience. I may 'pass in review' a group of values; of desires, such as for the scent of a rose, the meeting with an old friend, the triumph of a success; or on the other hand of aversions, from the prick of a thorn, the thought of the death of a friend, or the disappointment of a failure. The comparing of their relative importances is a formula; but each one of them is only an unanalysable individual. In our diagram therefore each of them is represented by a point; not by a stretch; not, that is, by a terminated group of the first order, of points.

However, the man in the street gets over this difficulty, or thinks he has got over it, by a device which is the converse of making to oneself pictures; he unmakes a static picture, substituting for it a formula. Taking our diagram again as an illustration of his process of thought, he takes not the points, A, M, P, to the right, or a, c, x, say, to the left, of *O*, as representing psychological values, but the stretches, *O* to A, *O* to x, and so on, as representing what we have agreed to call 'motives'; and then, by the aid of certain supplementary assumptions, or 'explanations', he can get his calculus. He wants now to be able to say that the stretch MP also represents a 'motive', as well as do OP and OM. His supplementary assumptions therefore begin with assuming a rule of thumb by which MP may be conceived to be 'transformed' to, say, OC, or perhaps OD;

while at the same time every point between M and P is being transformed also, to points between *O* and C, or between *O* and D. The theory of such 'transformations' is worked out symbolically in the Theory of Order, and it is shown that there are various ways in which this might be conceived to be done, various 'transformation systems' which might be made use of. Most of these systems would however be obviously inapplicable to the particular real import we wish to ascribe to them for our present purpose; or for that of elucidating the conceptions of space, of time, or of space-time. It transpires however that there are three systems of very general application, which may be distinguished as the positive, the negative, and the zero system; the last named being a 'limiting case' between the other two. Up to this stage in the argument therefore we have reduced the possibilities for a calculus of motives to three types; to make the calculus an arithmetical one we have further to cut out two of the three types, and retain only the limiting case between them; giving us the type of calculus we call arithmetic.

Not, of course, that the man in the street ever analyses his own mental process into any such form as this. He arrives at his conclusions mostly by trial and error; indeed only by very many trials, and after very many errors; for which not he alone, but his fellows and his ancestors for countless generations have, presumably, to be held responsible. Moreover, as a matter of fact, he does not attempt to apply a calculus to motives in general, he does so only to a very limited class of them; and this class is only a sub-class of that for which the corresponding psychological values come under the head of love of power. I hope I may make clear what I mean by saying that the sub-class only includes motives corresponding to psychological values in the sub-class 'love of power to make men do things'. Let us consider carefully how the man in the street conceives such motives to operate, how he conceives the 'power to make men do things' actually to work.

We have already discussed how the conception of MY power, to do certain things, is inherent in the very root of my explanation of things; MY power, that is, to control MY mental states to some

extent. To go on to talk about MY power to make other men, not merely think along the same lines as I do myself, but also control their bodily actions in accordance with MY will, is of course to go a very long way forward in the explanation of the Universe. We have seen that the limitation of MY power in some cases was what prompted the great dichotomy of ME and NOT-ME; and further limitations of MY power are implied by the further dichotomies; especially, for our present purpose, by that explanation which attributes wills to other human beings, which may be controlled by motives incompatible with my desires. The man in the street may conceive himself to overcome such undesirable motives in other men by persuasion, or by threats, or by force, or otherwise; but however he may conceive it to be done, the conception of the doing of it has to him a 'value'; he represents it to himself as a 'motive', and it is of this class of motives that he has succeeded in making for himself a calculus. He has postulated a transformation system for the group of motives of this class; though in order to do so he has unconsciously sacrificed the accuracy of the correspondence between the motives of the class, and the psychological values to which they are supposed to correspond. For the things he now calls 'motives' are not mere subjective feelings, individual and unanalysable, they are tokens of some sort, possibly only written or spoken words, or maybe more material objects, but in any case formulas, possessing the essential qualification that in the group of them we can perform 'transformations' according to the only system with which the man in the street is familiar, namely the arithmetical one.

Students of anthropology have in fact traced how the ideas of the man in the street have developed, say from those of the man in the cave. At first, we may suppose, primitive man had no sort of calculus of motives, or of his power to make other men do things; he just hit the other fellow on the head if he did not do them, or he just got hit on the head himself. Without the development of some sort of organization in the community, or at least in his own family, it is difficult to see how he could have got any forrarder.

Or perhaps it is better to say that the getting forrarder was just the development of an organization. Our psychological analysis has represented the development, so far as it affected the individual mind, as the adoption by it of 'principles' for the guidance of its conduct; the highest expressions of which are what we call 'moral' principles perhaps, such as Duty, reverence for elders, etc.: or still more, religious ones, such as the love of God. But these are psychological values of kinds not easily amenable to a calculus; the motives selected for that purpose by the man in the street are selected only in so far as he would ascribe to them 'money values'; and what he means by this we are now in a position to explain, by saying that the tokens which he uses in his calculus are what he calls 'money', and that in actual fact what money stands for to him is just 'power to make men do things'. In order to make his calculus work he substitutes for the real group of psychological values, or even of motives, a group of money-tokens; which he assumes that he can not only 'pass in review' but also 'transform', in a zero system, i.e., arithmetically; and that the value for which a token stands is not altered by such transformation.

The way this works out is as follows. In the primitive community, even if only in the family, certain 'principles' become established, as 'taboos'; they are if necessary enforced on recalcitrant members of the community by punishments; though so long as there is no recalcitrance this aspect of the development may not be conspicuous. Amongst these taboos, in a higher grade of civilization, appears the principle that certain objects are to be regarded as tokens of value; more particularly of the kind we have called money-value, which represents the power to make men do things; and the taboo to enforce this principle is the eighth commandment; *Thou shalt not steal*; this commandment applying to money tokens as well as to other objects which are regarded as the property of individuals. Now this commandment, or 'principle' may be said to be enforced by the power of the community 'to make men do things'; the individual man does not as a rule have to enforce it himself. We may indeed

conceive of special cases, such as that of Robinson Crusoe and his man Friday, where the community is a very small one, and where one man, Crusoe, has to take it upon himself to enforce the eighth commandment against another, Friday; but in such a case, unless it was due to habit contracted in more civilized surroundings, Crusoe would not require money tokens or a calculus of them; I do not remember whether it was told of him that he paid Friday wages, or that Friday bought things from him. But I think it may be taken as evident that without the enforcement of the principle of personal property, whether by punishment, precept, or sympathy, the use of money, or of a calculus of money-tokens, could never have arisen; and the principle of personal property in a thing would in this case imply power in the owner, not only to do what he liked with it, within the limits imposed by the 'laws of Nature', but to prevent the other man from doing with it what he liked, or to allow him to do so only on certain conditions; the imposing of such conditions being in effect an exercise of power over him, and this whether Crusoe was the owner, or Friday. It is simply confusing the issue to talk as if a material piece of gold, or a piece of paper with something printed or written on it, was in itself a psychological value; or even as if a psychological value was equivalent to it. A miser may indeed love gold for its own sake, to hoard it, and gloat over it in secret; but we say, with pragmatic justification, that such a man misunderstands the true value of money; it is the use, not the hoarding, of money which is useful; and the use implies the exercise of power to make men do things, or at least to abstain from doing them. The money, in whatever material form it appears, is a token, standing for such power, but it must not be assumed that it is equivalent to such power; it is a token used because a calculus can be based on it; this calculus is itself justified pragmatically, by its utility in the affairs of every day life.

These every day affairs of economics may be given with some confidence as real import to the symbolic calculus; but it is easy to cite affairs out of the ordinary run in which the non-equivalence of money-values and real psychological

values is evident. For example we may take the problem: What is the present value to me of £100, put out at compound interest for 100 years? Or we might cite various problems about gamblers' 'systems'; their infatuations with such systems being due to just this fallacy. We may however illustrate the point more effectually by tracing some of the consequences of the line of thought I am suggesting, rather than by citing cases where divergencies from it have led to fallacies; and this is what I propose to do in the remainder of this article, confining myself further to illustrations of the way in which it modifies our conception of human 'organization', and omitting for the present any of its numerous and important applications to what are regarded as more distinctively economic problems.

We may say that in general the problem of organization is not merely to enquire how I, or one individual 'body', can make other men do things; but also how a community, a 'body of men', or a number of 'bodies', acting together, can make each individual among them 'do his bit', for some common purpose. There is a sense in which such a working organization can itself be called one 'body', or even a unified personality; and it is a very significant sense; but for the moment we are not concerned with it; our business is to analyse such organizations, not now to discuss possible syntheses of their parts. And the point to be noted here is that though there may be a common purpose, it does not follow that each individual mind is aware of it; or that it guides directly his individual conduct; by being present in his consciousness even as an accepted principle, or even un-consciously in the way a habit might do. It is the business of the organization somehow or other to provide each individual in it, or each of which it makes use, with such a motive as may get him to do his bit; but the individual need not always know that what he is to do is a 'bit', of some greater structure; still less need he always know, or always bear in mind, the purpose of that structure; he may even never know anything about these matters at all; he may even have been kept in the dark about them intentionally by the leaders of the organization, lest if he realized what he was doing, and the purpose of it, that

might give him an aversion from doing his bit. This applies not only to the lowest ranks in the organization, to an individual to whom you can say " ' Do this, and he doeth it ' ", but it applies also to the subordinate leaders, if not also to the very highest leaders, in some old-established organizations. Consider for example such organizations as the Hansa League, in the commercial sphere; the British Empire, in the political; or the Church of Rome, in that of religion. Did the leaders of the Hansa realize that the League was in fact a political Power? Has it not been said that the British Empire arose in a fit of absence of mind? Who, even among historians, will venture to say what the ultimate purpose of that intensely unified organization, the Roman Catholic Church, will actually prove to have been, when the thoughts of all men shall have been revealed? For it is not among the thoughts of any individual men that the answer is likely to be found; but among the collective thoughts, of communions of men, whether of saints, or of sinners; and the study of such is as yet only in its infancy.

Here however we are not primarily concerned with what the purposes or motives in an organization are, or should be; the thing which immediately interests us is only how values should be communicated from one individual in the organization, called a leader, to another, a follower, or subordinate. The latter word suggests the answer; essentially the process is conceived as ' by giving orders ', that is by an exercise of power. The possession of such power by certain individuals is a thing far more real, far more intimate, than his possession of gold or of goods; it is only by the former sort of possession that the latter can be explained at all. It is only our inveterate habit of making to ourselves pictures, that obscures this patent fact to us. Of the gold, or the goods, which we possess we habitually do this; it would indeed be a waste of time always to go on thinking of them as more than this, as ' formulas ', or ' explanations ' of our sensations. But even when I expressly think of my possession of a thing, ' my horse ', ' my balance credit ', I habitually think only of ' my ' as a sort of adjective of ' horse ', or of ' balance credit ', similar to such adjectives

as 'chestnut', horse, or 'small', balance credit. Even though in the latter example the smallness of my balance may present itself to me as a formula, in that I recognize at once the restriction it places on my financial operations; the mere fact that it is mine, and not somebody else's balance, does not suggest any operations, any formula; any more than it would do to common sense to say it was 'red', or 'sweet'. But behaviourists profess to have analysed 'red' into a formula, even if they have not yet done so to 'sweet'; they regard it as sufficiently explained as so many vibrations per second; and we, more plausibly still, may analyse the possessive pronoun 'my', by a formula, which takes into consideration the operations by which possession is secured to me. Briefly we may say that it is secured to me by the exercise of power, or the anticipated exercise of it. In civilized communities that power is represented by the police, guided by the Law; in other words it is exercised, or potentially might be exercised in any given case, by an organization; one of very great complexity, which in its modern form has only been evolved by trial and error, aided more or less by symbolic reasoning, operating throughout countless generations of men. In other words, therefore, to account to ourselves for the 'possession' of gold or goods, we have first to explain this highly complex organization; whereas the possession by ME of the mere psychological 'value', in my technical sense, 'love of power', and the occasional exercise of it, does not require any of the explanations which in the pragmatic philosophy of common sense follow upon the great dichotomy of ME and NOT-ME. Without going outside ME at all I can always test it, by exercising control upon my trains of thought; even if, or rather just because, that control does not in all cases appear to be unfettered. Common sense, when analysed by pragmatic philosophy, does not maintain that the freedom of my will is given in thought, or given *a priori*; it regards it as established by trial and error only, as an Explanation; but it is an Explanation logically prior to that of the great dichotomy.

Naturally however, after the great dichotomy has been made, nay, in the very act of making it, the conception of power

becomes extended to apply, occasionally at all events, to my power over NOT-ME, as well as over ME; and also, reciprocally, to power of NOT-ME occasionally over ME. So also when NOT-ME is further dichotomised, say into animate and inanimate Nature, this further Explanation implies not only that parts of NOT-ME interfere with one another, and so have power with respect to one another, although maybe not always in quite the same sense as that in which I have power over them; but also that there are interferences between the animate parts of NOT-ME and the inanimate parts, which are to be conceived in exactly the same sense. The other minds which I conceive in men, if not also in animals, may differ in minor points from my own, which I here speak of as ME, but in the main I conceive them as having the same sorts of powers, and exercising the same in the same sorts of ways; and so I conceive them as controlling their own thoughts, on some occasions at least, and also as controlling, ocassionally at least, the inanimate things of Nature, and their own bodies in particular. Hence the question before us now is whether, or how, I can control another mind than my own. The 'whether' is a matter for direct trial and error; as the centurian said of old "I say unto this man, 'Do this', and he doeth it". This is indeed far from being an ideally simple example; but for pragmatic reasoning it is not always the simple examples that are most convincing; a number, and also a variety, of examples is required to establish an explanation firmly. On the other hand when we come to consider 'how' power is exercised by one mind over another, it is best to begin with the simplest examples we can find; and in particular to begin with examples which behaviourists might attempt to explain without supposing any communication, and still less any communion, between mind and mind at all. Suppose for example I wish to exercise my power upon a man, whom we may call B. If I am stronger than B, and more skilled, I may knock B down, bind him hand and foot, gag him, keep him in confinement, or even kill him. Short of murder, if I want him to lie still, every time he tries to sit up, I may hit him on the head; after a few trials he will conclude that sitting up

is an error, and he will lie quiet. My earlier operations, short of killing him, did not necessarily imply any power over B's mind, apart from his body, at all; a consistent behaviourist might say my later operations even, making him lie still, or even killing him, did not imply any such power. He would only say that they deranged the grey matter of B's brain; he might compare them to damages done to a motor car, by an ignorant or spiteful person fiddling with the levers and switches. He might even try to explain the way B apparently learned by experience, by some power of adaptation in the brain cells akin to inheritance among members of a species; if he could explain Darwin's formula 'survival of the fittest' in some non-teleological sense. Thus it may seem plausible enough to regard the crude sort of theory of punishment described above, by which I made B lie still, in a behaviouristic sense; and not as any exercise of my power over B's mind. As a matter of fact a great many people do practically hold a theory of punishment closely akin to this one, even though they are not ostensibly behaviourists; they conceive of punishment operating only by trial and error, rather than by anticipations of trials and errors, by the individual, even if they do not ostensibly try to explain away such anticipations on behaviouristic lines. And in particular many, if not most, people, obsessed by the theological dogma that only men have souls, and animals have none, have no other theory of how to control animals, or how to teach them; the sub-consciously behaviouristic attitude of such people is indeed indicated by their talking about teaching animals 'tricks' only, implying that any influence on the animals mind, if they concede the possession of a mind to the animal at all, is irrelevant. How this theological obsession, which of course is not confined to christianity alone, arose, we need not stop to consider here; but it is important to refer to it, if only to point out that it is not shared by the common sense of the man in the street, and that there is no reason whatever for our taking it up here; we may leave it to the behaviourists to do so, and to regard animals as mere automata if they like; and further to explain why they do not do the same to men and women, if they do not do so; or, to any individual

behaviourist, if he does regard all other men and women, as well as animals, as mere automata, we may leave it to say how he regards himself in this respect.

From our point of view however we may say (a) that when I ill-treated B in various ways, knocking him down, binding, gagging, imprisoning, or even killing him, I may have had no purpose of controlling his mind at all; I may only have been trying to control his bodily actions, say in self defence; I might in the same spirit have attacked and put out of action an infernal machine. But (b) when I hit him on the head each time he sat up, *in order to make him lie down*, although a behaviourist might try to explain this otherwise, I was intending to control his thoughts, trying to lead his thoughts into some such formula as ' It is better for me to keep lying down quietly '. If I was successful I did in fact exercise power over his mind, to that extent. Common sense would say that I had *enforced* my will, by punishment and the threat of punishment; and although we may euphemistically avoid talking about enforcement, it is this crude method which lies at the basis of all, or nearly all, organizations; even though the crudities of the method are covered up, first by the representation to itself by each individual mind that it is guiding itself by ' principles ', accepted for guidance on some previous occasion, rather than by any present thoughts of punishment; and secondly by the transference of the power to punish from a single other mind, to an apparently impersonal organization. I say that the crude method of punishment lies at the basis of nearly all organizations; but I must not be held to have said that in their upper structures other methods may not also be employed, and indeed may not be the only ostensible ones; like what appears to be a marble palace, the real strength of which depends on the brick and mortar underneath the marble sheathing. After all, my control of another mind does not necessarily depend on that other mind picturing to itself my power, and ascribing a ' value ' to it as such; which is what the crude method of punishment depends upon. To begin with, I, or the organization which desires to control a man's mind, need not use the method of punishment directly, in the crude fashion described

above. It may use it indirectly, by building up gradually in the individual minds 'principles' of action, beforehand, ready to be applied without thought of the punishments; though these which may have been evident while those principles were being learned. But even the crudest kind of education of the young goes beyond this. I do not mean merely that it offers rewards, as well as threatening punishments; because from our present point of view this is really much the same thing; inasmuch as the possibility of making good such an offer depends on the possession of power, just as much as does the carrying out of a threat. What I mean is that the crudest kind of education of the young begins with originating, and trying to perfect, a method of communication between the mind of the child and that of adult people; other than the crude method of punishment. It is, no doubt, originated by the method of trial and error, and the errors no doubt often lead to unpleasant consequences to the child; but these unpleasant consequences are not all of them purposed by a teacher, as punishments, or with the object of getting into communication with the child's mind. The child itself may be purposing the trials, even if its purpose is only 'just to see what happens'. Later on in its education however the child will come itself to entertain the purpose of getting into communication with other minds, though it may not express it in words to itself. The child will then come to co-operate with the teacher so far, in learning to talk. The child, and later on the adult, will find this sort of communication useful, and for that reason alone might come to adopt it as a principle; in the same sort of way as he would be likely to adopt a principle of cooperation for a more material purpose; or for the purpose, say, of learning French, as well as English. But there is more in it than this. The child, by learning to talk chiefly, but also by other means, learns not only to communicate with, but to sympathize with, other minds. It learns not only a language, but a communion with another mind, for which the language is only the instrument. The child by speech learns not only what its teacher intends to do, but what the teacher feels, by the analogy of what the child feels itself. The child thus gets to picture to itself the

feelings and emotions of its teacher as being values, or motives, for the teacher's conduct; and then goes on to regard them as also 'values' to itself, by which it then also controls its own conduct. It does not only do what it is told to do; it does what the teacher would like it to do; the teacher thus has acquired a power over the mind of the child, which has nothing to do in the child's mind with the idea of punishment, but which we may say has been obtained by sympathy. Only if I use this word here in a technical sense it will be convenient to distinguish it from, say, affection on the part of the child for the teacher. The child might indeed adopt the teachers 'values' because it loved the teacher, or it might adopt them, when it conceived itself to know them, from mere fear of punishment; but neither of these cases would be what I wish to imply by the adoption of sympathy. What I mean would be more nearly akin to saying that the child adopted the teachers values by mere 'suggestion'; indeed what I am attempting to make clear is just what seems to be implied by that popular, but somewhat indefinite, term. It is a term which however I refrain from adopting just because, owing to its indefiniteness, if I used it I might be supposed to imply a whole lot of things for which I can not make myself responsible; but in addition to this to many people it might not seem to imply something for which I do wish to make myself responsible, namely that what I call sympathy between two minds is a mutual interference between them which is to be also regarded as a bond of union between them, by which we may speak of them as 'unified', *pro tanto*. Even if it is nothing more, to call it such unification is at least legitimate in the sense in which we speak of the sun and the planets being unified into a solar system, or a proton and electrons being unified into an atom, by mutual interferences. But if we adopt this sort of unification as a real explanation, just as real as the dichotomy, say, of ME and NOT-ME, and then test it, as the great dichotomy itself is tested, by trial and error, we shall I think find ample pragmatic justification for saying that it has real significance, and for accepting it among the fundamentals of our pragmatic philosophy.

It would go far beyond the scope of the present article to

attempt any reasoned pragmatic justification of this explanation of sympathy, as a unifying bond between minds; the most I can attempt is to give certain illustrations directly connected with our subject, organization. I have introduced the conception in connection with the learning to speak of a child, merely because that is an illustration of it which is familiar to all of us. But it is not only by speech that sympathy can be aroused between two minds; a smile, or the touch of a hand, may be quite enough; enough, that is, not merely to arouse emotions in each of them, which a behaviourist might affect to ignore, but to determine action for a common purpose, to create an elementary organization, in which perhaps one of the two minds was distinctly the predominant partner. In the case of hypnotic suggestion this is generally the case. The suggestions from the hypnotizer to his patient need not always be conveyed by means of speech; perhaps the ways in which they are conveyed might not always be explained as 'by the ordinary channels of sense'; but it may not be scientifically necessary to call in any such explanation as 'telepathy', as is sometimes done; for our present purpose it is the fact of the conveyance, not its method, which is of importance. And, we may add, the fact appears to be that what is conveyed is more in the nature of a 'value', than a formula, even if speech is the vehicle used to convey it; what is conveyed more especially by sympathy is something apart from any information conveyed at the same time, it is what determines choice, or conation. No doubt often there is information conveyed at the same time; but often it would seem that most of the information apparently conveyed, was actually only invented by the recipient; as an explanation embroidered, as it were, on a very small nucleus of data; and that the significance of those data lay in their emotional value, rather than in any explanatory formula in the mind conveying them; so that the active mind also may embroider a further explanation on the same data, which may be different from that embroidered by the recipient mind. As an illustration I may give an anecdote told by Dr. Pierre Janet. He was attending a patient who complained of abdominal pain, for which he recommended a mustard plaster.

When he came to apply it for her, he found however that his supply was exhausted, and it occurred to him merely to suggest the plaster to her, merely pretending to put it under the bandage round her waist. Next day when he saw her again he asked whether the plaster had given her relief. She said it had, but was it not an extra hot one? On removing the bandage he in fact found a red mark on the skin; much the shape of one of the standard ready made plasters, except that it had not sharp corners to the rectangle. He pointed this out to his patient, who said, 'Of course, you cut off the corners to prevent them from scratching me, as Dr. So-and-so always does'. It would thus appear that what had been conveyed by the suggestion might be called a 'value', even though it was one to the Unconscious self rather than to her ordinary consciousness; the value determining an unconscious control of bodily functions, which resulted in actual somatic changes, as a conscious value might have controlled movements of her arm. But not only was the general location of these somatic changes prescribed by what was conveyed, which is all the information Dr. Janet intended to convey, but the patients Unconscious self embroidered on to this further information; not only as to the general shape and size of the plaster, but as to the cutting off of its corners. We may compare this with the anecdote I gave myself, about the advertisement of the old gentleman in dress clothes and an opera hat. The thing the designer of the poster wanted to convey was a value; a value which doubtless he hoped I should attach to So-and-so's whisky; the information about the dress clothes and opera hat he did not wish to convey, as information, he wanted me to embroider that on for myself; and he counted on the shock of uncanniness which the discovery that the dress clothes and hat really were not in the picture, would give me, to impress the value of the whisky on me. The suggestion about the clothes and hat was an effect, not a cause, of the value which he tried to convey to me, hoping that in me he would find a sympathetic mind; but it was an effect which has in fact brought that value to my mind many times since, as no doubt it was intended to do.

Now there are, or at least were, certain schools of psychology which attempted to confine the use of the word 'suggestion' to morbid phenomena; this is in fact the main reason why I avoid the use of the word here. I do not confine the use of the technical term 'sympathy' to cases of communication of ideas, or of 'values', to hypnotized, or hysterical, persons, from an hypnotic expert, or medical man. But it happens that the most clear-cut and instructive cases are to be found in the literature of hypnotism and hysteria, though perhaps this is sufficiently explained by the fact that it is only the startling features of these morbid cases which have attracted to the subject men who have the intelligence and the industry to analyse them clearly. This it is, no doubt, which accounts for the fact that it is only comparatively recently that psychologists have attempted to distinguish clearly between acts done at the 'suggestion', in the technical sense, of another mind, and acts done, say, under fear of punishment; or voluntarily, merely to please another person who commands them. This distinction applies equally to 'sympathetic' communications between minds in the wider sense I use here, but the best illustration of it which comes to my mind is again an anecdote of Dr. Pierre Janet's,* about one of his hysterical patients, which is worth quoting in full.

> "Justine est aussi suggestible et hallucinable que possible, et cependent, quand j'essaye de lui faire une suggestion, il lui arrive quelque fois de me répondre un mot vulgaire, mais bien charactéristique: 'Monsieur, je ne sais pourquoi, mais cela n'a pas pris'.—'Que voulais vous dire? vous n'avez pas compris ce que je disais?'—'Si, j'ai très bien compris'—'Alors vous ne voulez pas faire cela, vous n'acceptez pas?'—'Moi, j'accepts tout ce que vous voulez, je ne demande pas mieux que de vous obeir et je vais le faire si vous voulez; seulement je vous avertis, cela n'a pas pris'".

The suggestion 'has not taken'. As Janet goes on to point out, Justine had experience of 'suggestions', "elle

* This time I have verified the reference. His '*Etat mental des Hysteriques*; *Las Accidents Mentaux*'; Rueff et Cie, Paris, page 19.

sait ce que c'est, et quoiqu'elle accepte volontiers, avec une confiance, et une obéissance absolues, cette idée nouvelle, elle sent que les choses ne se passent pas de la meme manière et que ce n'est pas une suggestion".

It is the same with sympathetic communications between minds, even in cases which are in no sense pathological; as we may readily come to believe once we have grasped the conception here called 'sympathy'; only, without that conception, the man in the street habitually goes out of his way to explain familiar experiences without it. For example we all talk of a 'commanding personality'; of a 'born leader of men'; we say that 'what X. says, goes'. In such sayings we deliberately imply that the personality did not command merely because he had the police at his back; the 'born' leader was not a leader because ne had been appointed to that position by authority, nor even does the common phrase imply that he got his power of command from noble ancestors. We copy from our American cousins the terse phrase 'What X. says, goes', just because it implies that there is a contrast between the saying and the going, and that the distinction lies in 'X.', that is in his 'personality'. All these phrases imply the belief of the man in the street in 'personality' as a force, a power possessed by certain minds, by which they make other men do things otherwise than by ostensible appeals to their volitions, by fear of punishment or hope of reward. But perhaps they do not sufficiently emphasize the other aspect of sympathy, the binding or unifying force between two minds. Yet the man in the street recognizes this also, though again his analysis of it may be inadequate. Even the most commanding of personalities has to be in some way 'known' by me, before he can by suggestion or sympathetic communication get me to do things; otherwise than voluntarily, or by 'duresse'. Perhaps a glance from his 'eagle eye' may suffice, or even if I do not see him when I receive his commands, his reputation may have gone before him; as if I should receive a command from the King. But more often it is only gradually that one mind can be said to get into sympathetic communication with another; and when this

does occur it will generally be found that one of the two is the predominant partner; that is, the one who most often imposes his will, by sympathetic communication of values, upon the other.

If, then, I have succeeded, by a sympathetic communication of values, or otherwise, in leading the reader along a train of thought parallel to my own, it will be easy for him to apply these considerations to one aspect of the analysis of organizations; the aspect which may be called the chain of command, from top to bottom of a hierarchy; in which all but the extreme numbers receive commands from those above, and issue commands to those below them. The other aspect of it, the chain of information, can not be touched upon in this brief article. The strength of the chain of command is commonly, if not invariably, based on force; though not on the force of the muscles of each member of the hierarchy as he issues his orders, but ultimately on the force of the police, to enforce taboos accepted by the organized community; in particular the taboos we call private property, and the sanctity of contracts. But no great organization could exist for long if this were all; it could not continue without the aid of sympathy between human minds, which aids the transmission of orders, by the sympathetic communication of values, but which also does much more than this, in that the communication of values unifies the communicating minds, gives them common values which they share together, and so unifies them, more or less perfectly, into unified spiritual or mental bodies; with purposes of their own, which may, or may not, be identical with the purposes of individual members of the organization. This aspect of the conception here called 'sympathy' is also recognized almost universally, indeed it is the connotation popularly associated with the word 'sympathy'. But the analysis to which the conception has here been submitted shows that the mere communication of a 'value' from one mind to another, apart from any communication of a more complex 'idea', or 'formula', is enough to explain why I desire to bring a smile to a baby's face, or why I should desire to lead the reader along a train of thought parallel to my own, or why he should follow it, in so far as I am successful.

V

ORGANISMS

In the last article I endeavoured to analyse the mechanism of organization by considering the individual steps in the devolution of authority in an organized body of men separately; we found that each step might be typified as the issue of an order from a leader to a subordinate, but that this did not in general imply the exercise of force on the part of the leader; or the conscious motivation of obedience by 'duresse', to the subordinate. Very often it was in part, if not even wholly, motived by a 'sympathy' between leader and subordinate, by the communication of a 'value' from the former to the latter, rather than a definite order in a verbal formula, or a definite idea, or 'explanation'. And the formal Explanation, as among the fundamentals of our philosophy, was accepted, that this sort of communication of a value from one mind to another established a definite bond of union between them, that, *pro tanto*, or *pro hac vice*, it unified those two minds into one. In this article I shall no doubt have occasion further to illustrate this; though if the reader has managed to 'catch on' to the conception, he will be able to find illustrations in abundance all round him, without any further suggestion from me; but my main object now is to consider more complex organisms than mere pairs of minds; and to consider them more especially as wholes, with respect to mere pairs of minds as parts; rather than considering merely the relations of the whole to individuals. For it is more especially through this way of looking at it that we come to appreciate the significance of 'sympathy' at its full value. And, incidentally, we shall in this way come to realize the importance of the second chain in the organism as a whole, which I briefly referred to as the 'chain of information'; running parallel, as it were, to the chain of command.

It may theoretically be possible for an organization to 'get on' without any, or with very little, sympathy between leaders

and subordinates; but practically under such conditions organizations are not found to work well; and even if they work, they would hardly be entitled to be called 'organisms'. This statement will no doubt be accepted generally, and even perhaps regarded as almost a platitude; but I want it to be accepted more particularly, in view of the definition here used of 'sympathy', and the explanation with respect to it, formally accepted. An able leader will inspire a whole organization under him with a common spirit; and as that wisest of mankind, Francis Bacon, observed, under an incompetent successor the organization will continue to work efficiently for some time after the mind which built it up has gone; but eventually it will disintegrate. All this again is common talk, but I trust that the reader, will by now see in it something more than mere metaphor, and will translate it to himself in more technical language as,—Under an able leader a whole organization comes to be unified into a single organism, by sympathetic chains; but under an incompetent successor, though those sympathetic chains will not die immediately, they will eventually do so, and even if the organization carries on, it no longer can be called a living organism. Very probably however it will break up into two or more distinct organisms under different leaders; in rivalry with, or even hostile to, one another

In greater detail we may describe what happens as something like this. When a leader, A, issues orders to a subordinate, B, he does not in general attempt to tell him exactly what to do; what he does would be better expressed by saying that he tells him what it is that he, A, wishes B 'to get done'. He may have to enter into details more or less, more if B is a young hand, in whom A has as yet no great confidence, less if the sympathetic bond between A and B is already a strong one. Also, no doubt, more if B is inexperienced or ignorant, less if he is expert and resourceful. It is, no doubt, part of A's job to help to educate his subordinates; and apart from this there will of course be details which A will necessarily have to go into, with respect to the particular order he is issuing; there will be information which he has to impart to B along with his orders. But what distinguishes the giving of an order

from the telling of a story is not in the information imparted, which may be the same in both cases; it is the imparting of a value. The essential thing which A communicates to B, is a desire to accomplish, not a method of accomplishment. It may not be impossible for A to communicate this by threats or promises, on one particular occasion; it may not be impossible even to build up a considerable organization, on threats and promises, backed by occasional performances both of the one and the other; pirate leaders are popularly supposed to have built up their organizations on this basis; and some of them seem to have attained considerable, if only temporary, successes. But even in these organizations the bond of sympathy is to be found, in the technical sense in which we use that term here; even if it involves nothing like the love which we associate with the term in common usage. Certainly it bulked largely in the ways in which Long John, in Stevenson's 'Treasure Island', organized his band of mutineers; they all of them obeyed him, though none loved him, and few would have admitted that they were afraid of him. Nevertheless, the bond was strong, and the unity, for a time, very real. And the utility of such a bond lies not merely in getting someone else to do what I might have done myself, but in unifying two or more men into an organization, even if not into a living organism, which can do much more than any one of them alone; or even than all of them, each acting alone and unorganized, could have accomplished. The power of an organism is not the sum of the powers of its unorganized parts. Consequently it will not be enough for A to give orders to B only, if a great work is to be carried out; but to C, D, and others, who will have to co-operate with B. But the actual things C and D will have to do will probably not each of them be the same as B's bit. If what A wants to get done is to have a cart pushed along the road, and he tells B, C, and D so, suggesting also the desire in them to get it done; they will not all push in exactly the same place; but all having a common value imparted to the purpose of getting it done, they will each find for himself a place to push. In more complex cases however, one of them will have to take the shafts, to steer the cart; if they are an

organized gang of labourers, one of them, perhaps a 'born leader', or perhaps an appointed foreman, will take over this job without a palaver. But if they are quite unorganized, it may be necessary for A to 'tell them off', before saying 'Go'. But I have watched the failure to accomplish such a simple job, through failure of a sympathetic bond between employer and employed, even though means of punishment or persuasion existed. Each man knew what to do, each in a sense tried to do it, to avoid punishment or to earn his pay; but that was all they were thinking about; they did not each of them desire to get the thing done, nor was each of them in sympathetic communion with A; consequently when he said 'Go!', it didn't go; and they all turned round, sweating and panting, and grumbling at A.

There is however another quality required for leadership besides the mental power commonly called 'power of command'; the leader, if he is to retain his leadership long, must be a wise man, as well as a strong one. Nestor was as great a leader, if not greater, than Achilles; Ulysses was a greater than Ajax. Now wisdom is acquired primarily by trial and error, and it might be argued that while in acquiring it we make use of other people's trials and errors as well, or even more than, our own, our ability to do so is itself only another example of wisdom acquired by trial and error. I have however already attempted to combat this notion, and no one who catches on to the conception which I here call sympathy can fail to recognize what an important part it plays, not only in the mere learning of a language, but in the credence given to teachers, not only of languages, but of everything we think we know. It is not enough to tell a story, you have got to suggest to the pupil to accept it, to believe it. Of course teachers in all ages have tried to get people to accept their teachings by other methods, by the cane, the rack, and the stake. They have often obtained verbal acceptance, and I will not deny that occasionally they may have obtained something more; but we may say with complete confidence that the greater part of what we learn at school is merely suggested to us; we accept the suggestion in nearly all cases without

question; it very seldom happens that '*elle n'a pas pris*'. Not least is this the case when the 'education' is of the highest quality, by a really great school master, who tries not so much to suggest mere learning to his pupils, as to 'draw out' their own powers; by suggesting to them values, the value of finding out the answer for yourself; the sort of master who makes you think, and not merely con by rote. This is the sort of wisdom which in after life is demanded of the leader of men; he has got to know how to choose himself, not merely to take, out of a card index as it were, pictures learned at school of how other men chose in the past; for indirectly his choice will have to depend not only on the experiences of man in the past, but on information recently acquired, bearing on the problem of the present; and nearly always a great part of this information will come to him from the very men to whom he issues commands. In a small organization especially this will generally be the case; and a sympathetic bond between leader and his subordinates is therefore of special value, to keep the leader informed, and so enable him to issue orders wisely. A good horseman, for example, is not only in sympathy with his horse in that he controls him by suggestion rather than by force; he is so much in sympathy that the horseman seems to feel the ground on which his horse's hoofs are falling, as when walking I seem to feel the ground with the point of my walking stick. The horseman feels himself the joy of the horse, galloping over springy turf; and his pain, if he begins to 'go short' on a hard road. The horseman knows at once if the suggestion '*n'a pas pris*', when he puts his horse at a stiff fence; and he may indeed have time before the refusal to enforce the suggestion with a cut of the whip. In this sort of way thoughts, which develop in the recipient's mind ideas and explanations, but which as transmitted are little more than emotions, are communicated sympathetically; from horse to horseman, and generally from subordinate to leader, in an organization; and so we find that the deliberate giving of information to a superior, just as much as the deliberate issue of a command to a subordinate, in the hierarchy of an organization, is facilitated as well as accompanied, by sympathy; and therefore that it helps to

forge the sympathetic bond between them, and to cement the unity of an organization into an organism.

In the smaller and less complicated organisms it is not easy, nor is it necessary, to distinguish the parts played in unifying its elements into one whole, by the sympathetic transmission downwards of orders, and upwards of information; so long as they both go on between the same pair of minds, both are aspects of one sympathy. In small organizations therefore we hear little of the two chains, one of command and one of information. Indeed it is not very much to the credit of academic philosophy that it seems to have been left to military philosophers first to distinguish them clearly, and even this has only been done in quite recent years. But if statesmen and men of business have not formulated the same idea in philosophic terms, they, or at least the successful ones among them, have applied it in practice. The secret service of the Foreign Office is only a small part of the service of information of the organization of the British Empire; the whole of the consular service is another part of it; also separated from its service of command, here represented by the legation staffs. All large commercial concerns also have services of information; if not of their own entirely, they make use of independent agencies; Pinkerton's in the United States began in this way, I believe; and in England there is an agency of this kind, which if I remember right bears the name of Stubbs. In the organization of the police in England the separation of the two services is very complete; that of information having its H.Q. at New Scotland Yard. But we must not, of course, carry the metaphor of two chains, of command and information, too far. Each chain might better be likened to a spreading tree, the stem dividing up into branches, each branch into twigs, and each twig into bunches of needles. But even this metaphor would leave out of account cross connections between the branches or twigs; short-circuits, to take another metaphor, passing over intermediate points of division between branches of the same tree; and also passing perhaps from one tree to the other, connecting points in that of command with that of information, without having to pass through the head quarters

of the organization. To what extent this should be permitted it is for the directors of the organization to decide; in some cases it is pernicious, but in others it is a valuable device. Thus the policy of the organization as a whole might be seriously hampered if certain subordinate departments short-circuited information, and made use of it on their own initiative before informing the Board of Directors, or even without letting them know it at all. It might even lead to such confusion that people outside would notice it; they would say " This great organism is guided by a double personality, like that of Sally B.". For example, we may regard the newspaper press in each country as its service of information; and it may happen occasionally that ' synapses ' (that, I believe is the latest *argot*) become established between certain newspapers and certain subordinate individuals, in the government or other parts of the executive political machine. If this is suspected it is deeply resented by the public; if not by the politicians who have been ' got at '; nor, perhaps, always by other politicians, who look forward someday to being ' got at ' too. And obviously such a thing might lead to an ' *imperium in imperio* '; the phrase is a recognition by common sense of the danger. Yet under some circumstances very similar ' synapses ' are not merely harmless, but useful, and an essential part of the working of the machine. It is when the synapses are used not merely to convey information, but orders, to departments or individuals, that the danger arises; and the great difficulty in distinguishing these dangerous cases from harmless and useful ones, is not merely that the same bond of union between two minds serves either purpose, but that in fact orders are most frequently conveyed merely by suggestion, once the bond has been established. That is by the direct conveyance, not of explanatory formulas, or completed pictures, but merely of ' values '; although the values conveyed may be such as will in the mind of the recipient start explanatory formulas, and conjure up pictures, so that it will appear to him that what he has received is not a command at all, but only information; which it was the legitimate function of the newspaper to convey.

This is a very crude sketch of the actual working of the great

organizations which we see operating in modern civilization; and from looking thus into them in detail it may not be at once evident how these interferences between the elements of an organization can come to justify us in talking of the whole, not as a mere complex structure, but as an unified whole; as a living organism, rather than a mechanical organization. Though we are habituated to talking of it in this way, it might be objected that we were doing so only metaphorically, or, still worse, metaphysically. So long indeed as our talk was too vague to be capable of philosophic analysis this objection may have been valid; but with the sort of analysis given in outline here the objection breaks down; at all events in the mouths of men of science who base their belief in the individuality of human minds on a precisely analogous analysis, supported, not more, but very much less, directly, by observation and experiment. I am not here referring to psychologists as 'men of science'; they may be tainted with heresy, even though they publicly proclaim their strict behaviourism; I am referring only to biologists and physiologists. These talk of men and women as individuals, and for most purposes they function as such in the explanations of Science; yet physiologists have shown that within the human body there are living parts, cells forming rigidly attached parts, and blood-corpuscles running about loose in the veins and arteries, whose lives are more or less completely independent of the life of the human being as a whole. To me it may seem a difficulty which has yet to be satisfactorily to overcome, to explain whether, or how far, we must credit cells in the human body with consciousness, feeling, or volition of their own; but the behaviourist does not, and consistently he can not, ask this question; the cells and corpuscles certainly have 'behaviour'. And the physiologist goes on to explain how the behaviour of the elements of the human body is coordinated, by the mechanism of the nervous system; in this he describes precisely such an organization as we have been analysing, down to the distinction between the chains of command and information, which is extraordinarily clearly marked. He also recognizes 'synapses'; the word is indeed his own. And he recognizes them as an essential

part of the normal mechanism; but he also recognises that occasionally they may work wrong, and do harm instead of good. The failure of a synapsis may produce locomotor ataxy; the erratic functioning of synapses in the grey matter of the brain may account for the divided personality of Sally B. But even the behaviourist does not attempt to explain away the normal unity of a human being. Somehow or other he has got to explain how the cells and corpuscles of the body come to be unified into a single living organism, with a specific behaviour of its own as such. He has not, after all, evaded the necessity for laying down some sort of behaviourist formal Explanation, analogous to the subjective one we have accepted, about the unification by 'sympathy' of two minds. And it would be simply futile for him to pretend that to him the normal unity of a *homo sapiens* did not matter so much, as the unity of an atom.

So also it seems to me that it would be simply futile to attempt to explain the unity of a *homo sapiens* without assuming some elementary form of consciousness to be associated with the functioning of the lower ganglia in the human body, as well as with that of the grey matter; or even without extending such an explanation to the individual cells and corpuscles; whether in the grey matter or other parts of the nervous system, or without it. And as soon as this is done we assimilate the unification of the consciousnesses, however elementary, of the cells, corpuscles, and nervous system, into unities or cerebral organizations, to the sort of unifications of individual minds into business companies, or national constitutions. From the point of view of the pragmatic philosophy I am here attempting to expound the two kinds of unification are not merely analogous, or similar, they are identical; we have not to apply the razor of Occam in order to simplify them.

It will, I hope, not only prove interesting, but will serve to test our pragmatic philosophy by trial and error, if we consider more particularly the characteristics of some of the great human organizations we see around us, and which are worthy of being called living organisms. I have indicated my belief that in all of them the operation of 'sympathy' in establishing union

takes a great part; I may go further and say that no organization in which it does not play a great part very is worthy of being called an organism. But this is hardly realized by the man in the street, who, if he tries to think the matter out at all, probably would say that fear of punishments and hope of rewards were the two chief, if not the only, factors in building up organizations. Very likely he would go on to opine that the former was the essence of 'militarism'; while the latter was what distinguished the beneficent '*laissez faire*' of the Manchester School of economics and sociology. But is this so? Have military organizations in fact been established mainly by fear of punishment? There is perhaps a sense in which we may say that military organizations have from time immemorial been employed by governments in order to put the fear of punishment into the minds of the people; or at any rate of foreign peoples. But within those organizations themselves the role played by fear of punishment has nearly always been a secondary one; for considering the military organization as a whole there would in general be no one to inflict the punishments upon it. It is true that subordinate parts of a military organization might be punished; that of course has always been recognized and often done. But that in general has been secondary. The power of the Roman Emperors, at all events in the degenerate days of the Empire, was maintained by the Pretorian Guard, an organization on a 'voluntary basis' which was pampered the more an individual Emperor felt himself weak. In the days of Louis XIV, the fidelity of the rest of the army (under the influence of Fouquet) was secured by the Mousquetaires (under D'Artignan) at the time of the episode of the Man in the Iron Mask (see Dumas' *Vicomte de Bragelonne*); but service in the mousquetaires was 'voluntary'; that is, though individuals might be punished in minor ways, the men served in the main for reward; in the shape of pay, or other attractions. It is only in quite recent times that a so-called 'compulsory' military service has been thought of as a general principle of organization; and it can not be said that in most of the countries in which it obtains the majority of young men join up mainly from fear of

punishment; if anything approaching that were the case the whole country would be seething with discontent; the government would at once be denounced as a tyranny. Whereas it is just the young men of the country which prides itself most on Liberty, Equality, and Fraternity, who have made the greatest sacrifices in order to carry out their obligations of military service. I can only say that any politician or agitator who talks of military organization as founded mainly on fear of punishment, does not know what he is talking about.

Equally foolish is it to talk as if the sort of social organization which is associated with the 'Manchester School' depends, or could possibly be made to depend, only on the hope of rewards, without any fear of punishments; and this, I am afraid, not even if it could call in the utmost aid from sympathetic suggestion. The doctrines of the Manchester School are more especially economic, and do not ostensibly call in the aid of suggestion; but as they do depend on the calculus of what we here call motives, or money-values, any discussion of them must be postponed to a later occasion, when that calculus shall have been further analysed. For our immediate purpose it may suffice to point out that the whole basis of economics depends on the principles of private property, and the sanctity of contracts, and that these are, and can only be, maintained by force, or threats of force; namely by the police. When we come, however, to organizations of a rather different type, which while professing more or less emphatically to dispense with force, dispense also, ostensibly, with economic rewards, we find that the more perfectly these professions are put into practice, the more do the leaders of such organizations rely upon sympathetic suggestion; and that not merely in the popular sense, but in the technical sense given to those terms by our analysis. This is clearly seen in the case of all governments of the type we call 'constitutional', in which the power has fallen into the hands of persons not at all of the military type, who may indeed be seeking for themselves 'power' as well as 'place'; just as on the other hand many a soldier seeks for himself place, rather than power. But such persons, as long as they remain constitutional politicians, do not conceive them-

selves as seeking power by force. They talk themselves into thinking that they seek power *for* the benefit of the People, and *by* the power of persuasion. Their success in the first respect no doubt aids them mightily in their success in the second, for it is not the formulas or explanations, which they persuasively convey to the voters, which as a rule determine the result of an election; generally both sides promise very much the same things. The thing which turns the scale is if the candidate can suggest to the voters to take him at his own valuation, i.e., what he really wants to convey is a 'value', like to a 'value' in his own mind; and he wants, more or less consciously, to forge a bond of union between him and his constituents. This is probably the most favourable explanation of the theory of government by election, which could be put forward successfully. The popular theory, put forward for the consumption of voters, that they vote for 'measures not men' can hardly ever even seem to be confirmed by experience; at best it could only be so where a single, and perfectly simple 'measure' formed the issue before the electors; but in such a case it would really be a 'value' for which they were voting, such for example as might be presented by the question 'Peace, or War'. The clap-trap about 'Government by the People' is only one of the devices by which orators 'fool all the People, part of the Time'. It would be folly even if Government did consist merely in passing 'measures', and not in directing a vast organization. But it is just the sort of clap-trap which suggests a value to the populace, a value which is apt to control their votes; the significance of sympathetic communion between minds is therefore evident here also. If the People, and not a few from among the best brains among them, really do devise 'measures', or still worse, if they really come to direct the executive Government, Heaven help us!

And there is a third theory of representative government, which I am afraid tends too often to be realized in practice; one which does not rely on sympathetic communion between the People and their representative, at least not in our technical sense; but rather on the promise of rewards. In so far as

the rewards promised were merely those incidental to good government, this would be all right; but as pointed out above these would generally be offered equally by either party to the contest. But the method becomes pernicious when it takes either the form of personal promises to individual electors, i.e., bribery, or the more subtle form of promises to classes of individuals; in which latter form the bribery is bad enough even if the promises are such as could be performed, and would benefit the particular class bribed with them, even if they were performed. It is to the performances of bribery in this form that many of the worst follies of representative government are due; and indeed there is little to be hoped but folly from representative government on this third theory. For even if pandering to a particular class were good for the nation, the particular class or people is no better judge of what is good for it, is no more fit to govern itself, than is the People, with a capital P. This third theory of representative government must therefore be condemned, as folly, if not worse; but it does approximately conform to the ideal of a government by rewards, without punishments, and little or no sympathetic communion; a sort of 'French, without tears'. When however it passes over to the promise of rewards which it is known will never be realized, whether such a promise is made by the head of a government, or by a private parliamentary candidate, it is something more than a folly, it is despicable. But from our present point of view it is interesting to note that at the same time the theory has passed over from one of mere rewards, to one of suggestions; and to one of suggestions of a kind which most glib orators are able to give, if their consciences permit them, even without being wizards.

We may consider yet one more type of human organization, in which the motives fear of punishment and hope of reward, in this life at all events, are professedly left out; or at least the idea that the human leaders of the organization are responsible for the execution of punishments or the giving of rewards in this life, is professedly left out. The result is that professedly the organization has nothing but what we here call sympathetic communion to rely on, to carry on its purposes. I am of course

referring to religious organizations, Churches, christian or other. I hold certain religious truths which I regard as values; and I know that there are religious communities which hold others to which I should not attach value, which I may say therefore, to me are mere 'dogmas', in which I do not believe. We do not wish here to discuss the truth of religion in general, and still less that of the particular forms of it which do bind men together into particular religious organizations; but if we think only of the dogmas of some religious community to which we ourselves do not belong, we may agree further that such dogmas are communicated to the members of the community mainly by suggestion, or sympathetic communication in our technical sense; and that they form bonds of unification for the communities which in many cases are of marvellous force. No doubt some of these dogmas imply promises of rewards and punishments in a future, or even in this present, life; but even so the appeal made by the preacher is not to trial and error, to carry conviction to the mind of his hearers, but to a claim that he, the preacher, is himself a divine messenger, conveying divine truths, and that it is God who will inflict the punishments, or send the rewards. He claims that he, the preacher, is already in communion with the Deity, indirectly if not directly. Or even if he does not directly refer to any God, as the Theosophists do not, he claims a closely analogous communion with something which we may here call a source of truth, or of transcendental knowledge. The novice therefore, who is not as yet himself in communion with any such source of truth, has to rely on sympathetic communication from his teacher only. And in all religions the communion between members of a religion, or of a sect of it, is insisted on in one form or another; and history has shown over and over again how powerful this bond may be, and how real the unity of the community within which it is exercised. If we choose in the case of our own particular sect to ascribe it directly to Divine Grace or Inspiration, we have still to recognize the power in Anti-Christ, or of the hosts of the unbelievers, who do not recognize that Allah is one God, and Mahomed is his Prophet; as the case may be. And moreover we must recognize the same

power of sympathetic communication, to bind together human organisms, in the case of religions or philosophies which are not distinctly theistic, such as Theosophy, Buddhism, or Confucianism. As psychologists and philosophers we have to recognize it, quite apart from our own religious convictions, and the unity of the communities in which these hold sway.

We have diagnosed three main factors in building up human organizations into organisms, and in enabling one man to make another do things; the fear of punishment, the hope of reward, and the sympathetic communication to him of a 'value', and into the various types of organization we have discussed these three factors enter in varying proportions; but I doubt whether there is any one organism from which any one of the factors is wholly absent. Perhaps the nearest approach to such a case is to be found in the Society of Friends, from the organization of which the factors fear of punishment and hope of reward, on this earth at any rate, are more nearly excluded than from that of any other religious community. In no other is reliance upon sympathetic communication so exclusively inculcated; in no other is resort to the aid of the 'civil power' so expressly debarred. It would threfore be of very great interest to make a study of the history of this Society, from our present point of view; in order to ascertain how far its theoretical aspirations had been carried into practice. For it is obvious that, even with the best intentions, a Society of Friends living in the midst of an ordinary civilization must receive adventitious aid in maintaining its moral precepts, by the mere fact that similar precepts are being maintained in the community outside the Society, by the police. And it is possible that a historical study of isolated Societies of Friends, such for example as existed in the early days of the colonization of the American continent, might reveal that even though such Societies eschewed anything like objective or corporal punishment, even of children; yet they employed methods like 'Boycotting', or social ostracism, which in effect might have very objective results; especially in an isolated community in a new country, where indeed the penalty of ostracism might in some cases even be equivalent to one of death. I do not think it would be unfair to this

Society, for which I personally entertain the very highest respect, if we were to conclude that, in spite of the *bona fide* efforts of its founders, the fear of punishment, even in this world, is in fact among the foundations of its organization. Nor is it any more possible to exclude from them any hope of reward, in this world as well as in the next. If social ostracism can be a punishment, so can social approval be a reward; and if in the former case the punishment was not in all cases merely subjective, neither is the reward of social approval. It will generally bring with it not only 'place', and dignity, but also 'power', the power to make men do things; the sort of power which can be estimated as a money-value, even if ostensibly money seems to have nothing to do with it. Although the hope of attaining leadership may not figure in the minds of all members of the Society of Friends as a reward to be striven for, it would be fatuous to assume that it does so in none of them.

It is not at all easy, though it may be interesting, to speculate upon the respective importances of the three factors in the cases of various human organisms, as the above illustrations may have shown. But speaking generally we may I think say this much. Practically all organizations are based fundamentally on the fear of punishment and the hope of reward, and more especially on the former; for the possibility of offering rewards generally depends upon some existing organization, which itself depends on the efficacy of punishment; such an organization, for example, as the police. But in practically all organizations the sympathetic communication of values also comes in more or less; and the more it comes in the more does the organization become unified into what may be called a living organism; the more nearly does it attain the degree of perfection realized in the sort of organism we call a *homo sapiens*; which also may be analysed as an organization, and an enormously complex one, of minute living elements, which must be regarded as elementary minds, as well as elementary bodies.

VI

A CALCULUS OF MOTIVES

If the reader has been able to follow a train of thought parallel to my own so far, he will have attained fairly clear conceptions, as working formulas, of organizations and organisms. But these conceptions will I hope only spur him on to find out how new organizations and organisms, like those whose value he has come to appreciate, may be brought into being; how a hierarchy of leaders and subordinates, and a chain of command and one of information, may be set up; how the directors may be enabled to select wisely the particular motive to be supplied to each subordinate, in order to get him to do his bit. The solution of these questions is Wisdom; the capital W may here be excused, for it would obviously be impossible here for me to give any complete solution of the problem; but there happens to be one partial solution of the utmost practical utility which we may here analyse with advantage; I refer to the calculus of motives, or more particularly of what we called money-values. We shall see that this provides formulas for the guidance of conduct, under certain social conditions, which are so generally applicable that philosophers of a certain school, associated with the town of Manchester, not only habitually make to themselves pictures of them, but accept these pictures as fetiches, or axioms; while nearly everybody more or less habitually pictures 'money values' which he mistakes for real psychological values. Nevertheless the calculus of money-values is of such immense importance to mankind that these occasional exaggerations and mistakes sink into insignificance even, in the minds of most philosophers; and their bearing upon even the most urgent questions of the day, such as the influence of Marxian Socialism on the maintenance of peace, law, and order, in a word of civilization, comes to be ignored.

We have already sketched the general conditions under

which a symbolic arithmetical calculus can be applied to a real group of objects of thought. In taking for that group what we call 'money-values', we imply not only that the group is one of the first order, which can be passed in review as such, which would be enough to enable us to talk of one money-value as greater than another, but also that we are given a transformation system in the group, by which, to put it briefly, we may take any money-value as a zero, from which other money values may be reckoned as greater or less than one another, by a money value, called their 'difference', which is independent of the selected zero. The way this is actually done is to take 'tokens' as standing for money-values, which tokens themselves form such a group as is described here; for example the tokens may be handfulls of cowrie shells; or weighed quantities of gold; or gold coins weighed out each of them, and impressed with a government stamp to assure people of their weight and fineness. In the case of cowrie shells perhaps the calculus is performed solely by the process known as 'counting'; the relation of this process to a continuous passing in review is just what the Theory of Order analyses; only instead of analysing it in the usual way, explaining continuous order by means of counting, it sets to work the other way round. However we need not trouble ourselves about these technicalities now; the great thing to note is that we have actually arrived at a process of transformation for our calculus of tokens; which we base on the fact that, either dis-continuously, by counting, or continuously, by some such process as weighing, we do recognize the equivalence of importances of the heap of tokens which remains, after you have taken away a part of a given heap, with a certain one which is a part of the heap taken away. And thence, inasmuch as by this formula the case is not excluded in which the former remainder is greater than the part taken away, we naturally pass to the discussion of importances which are 'equal, but of opposite sign'; that is, in the language of commerce, to the consideration of debts, as well as of credits.

But if in this way we have attained to a calculus of importance of our tokens, this is not yet the same thing as a calculus of

money values; we have to analyse how we come to ascribe a money-value to a token; and what this means in terms of real psychological values, such as serve to guide conduct. Little children on the beach may play with cowrie shells, divide them into heaps, and, if they are precocious little people they may do sums with them, as with an abacus; but all this does not turn them into money. We need not stop to consider how this is accomplished among primitive races who use cowrie shells as money, since the process in its more developed stage is sufficiently intelligible. In civilized communities it is done by a 'law of legal tender'; although in partially civilized communities this formal law may be represented only by a custom, or social habit, the origin of which it might be difficult to trace. This law in effect says "If you contract to do something for so much money, that means that you have got to do it if the person with whom you have contracted gives you so many standard coins of the realm", or their legal equivalent. This last qualification however need be nothing more than a complication of the law of legal tender necessitated by the crude method of counting coins discontinuously; it becomes necessary to provide for fractions of the standard coin of the realm, in England of the sovereign, in America of the dollar, and so on.

But we have not quite got there yet. What, in the above formula for the law of legal tender, is meant by saying the other person 'gives' you coins of the realm? The word conjures up a picture, of the one man putting his hand in his pocket, pulling out a handful of gold, and handing it to the other man, who in turn puts it into his pocket. But this is just the kind of picture which is likely to lead us astray; the picture of the gold in the pocket is just the sort of thing to which a miser mistakenly attaches value; it is just the same sort of thing which makes a certain Mr. Norman Angell perpetrate, or at least made a whole lot of people accept, a lot of fallacies about the impossibilities of a great war; because the money of the combatant nations would be exhausted almost immediately; a lot of fallacies no doubt calculated, and I am afraid only too well calculated, to put the British nation into a false sense

of security; and which have cost millions of human lives, to say nothing of losses of money beyond the dreams of Mr. Norman Angell's pre-war philosophy. If we would only habituate ourselves to thinking in formulas, and using pictures, which we may often do with advantage, only as themselves tokens, standing for formulas, we should see at once that the actual transference of the gold from one pocket to another was at best a mere symbolic action, differing only from the transference of it from one of the first man's own pockets to another of them, in that it signified a transference of power, to make other men do, or not do, things. And, given certain conventions, this transference of power might have been effected equally well by handing over a piece of paper, of the sort called a cheque; or even without that, by the two men giving directions to their respective bankers to make certain debit and credit entries in the bank's ledgers, which would have the effect of decreasing the first man's credit balance, and increasing that of the second man, to whom nominally the payment was made. No doubt, if they had different bankers, there would be further adjustments required between them respectively; but they too, for the moment at all events, need only be 'paper' transactions. Even although, nominally, metallic gold was the only legal tender, it need not appear; in these particular transactions, at any rate; and it is a moot point still among economists and bankers whether it really need appear at all, even at the Bank of England.

But, it may be urged, though what actually passes from man to man as 'payment' may be only a piece of paper, or token representing money, what it represents must ultimately turn out to be a thing of real intrinsic value, which vicariously gives its value to the cheque, or treasury note. So long as we regard money-value of any kind as 'intrinsic' to a thing, this sounds plausible enough. Indeed if we start with a postulate to the effect that there is a certain kind of thing which has an intrinsic value, let us say gold, the theory will work out well enough; up to a point, in a civilized community, so long as, by sympathetic communication, the 'value' has been communicated to everybody. But note, this can not

be done by a law of legal tender, for that law is only a law for the enforcement of contracts; or speaking literally it is not even that, but is subsidiary to the law for the enforcement of contracts, being merely explanatory of contracts in a particular form, in which one aspect of the contract involves a payment in money. It has however long been recognized, by economists and bankers, that sooner or later this theory breaks down in practice. They may not all be agreed as to exactly how an over-production of raw gold, or a deficiency of the amount of coined gold in circulation, may affect the intrinsic value of the standard coin of the realm; but there is a general agreement that it may be affected, by these or other causes, from time to time; and that any such changes are liable to affect the welfare of the community; one way or the other, if not always for the worse. It is, I believe, generally agreed that though the adoption of a 'gold standard' may minimise these fluctuations, it can not obviate them entirely; while if there is no such relatively fixed standard, if the legal tender of the country is paper only, they may assume perfectly disasterous proportions, as they did in Germany, and in other countries after the great war. We need not however for our present purpose attempt to discuss these rather abstruse and technical questions; the thing we require to note is that the assumption of an intrinsic value for the legal standard token is really only an arbitrary one, in the sense in which we say that a definition in a symbolic theory is arbitrary. It is not established by trial and error, still less is it given '*a priori*', it is only a verbal definition, for which the most that can be said is that it is less inconvenient than any other; and we reserve the right, if convenient, of changing it at any time. Not that for this reason the assumption of an intrinsic value for the standard coin of the realm must necessarily be useless; such arbitrary definitions, when forming part of a complex symbolic theory, may prove of the greatest utility to philosophy. Only it so happens that in this instance that does not seem to be the case. We do not seem to be getting to useful conclusions, at least not to undisputed ones; we do not seem to be getting to any general comprehension of the problem of money, nor are we reaching conclusions which

could not be as easily reached otherwise, or which can be verified by trial and error. We might paraphrase all that has been said into the language of the daily press, and then find it, or something almost indistinguishable from it, in one or another text book of economics, or one or another leading article on the Chancellor of the Exchequer's policy, without its helping us to a philosophic decision between their divergent views.

Let us then strike out afresh, and abandon the idea of an intrinsic value for a standard coin of the realm, or for anything else. We may begin by considering an attempt in this direction which has already been made, by a thinker whose works have obtained a vogue which is quite out of all proportion to his real ability, or to the real merits of his theory. It is only to the obsession under which we all labour, that of making to ourselves pictures, that this theory has not merely been able to deceive the ignorant, but has remained without any satisfactory refutation, even from the greatest of academic economists. I refer of course to Karl Marx' theory of values, as expounded in his famous book, *Das Kapital.* So far as concerns the particular point we are now discussing, Marx as usual makes a great parade of defining his terms. He distinguishes carefully between "*Gebrauchswerth*" (use-value) and "*Tauschwerth*" (exchange-value) though he says that the progress of his analysis will show that the exchange-value is the necessary form of expression or appearance of the value, or "*Werth*" without qualification; and he then goes on to say: *

> "Ein Gebrauchswerth oder Gut hat also nur einen Werth, weil abstrakt menschliche Arbeit in ihm vergegenständlicht oder materialisirt ist. Wie nun die Grösse sienes Werthes messen? Durch das Quantum der in ihm erhaltenen 'werthbildenden Substantz', der Arbeit. Die quantität der Arbeit selbst misst sich an ihrer Zeitdauer und die Arbeitzeit besitzt wieder ihren Massstab an bestimmten Zeittheilen, wie Stunde, Tag, u.s.w.".

* *Das Kapital*; Hamburg, Otto Meissner, ch. 1, page 5. "A use-value or piece of goods has thus only a value, because abstract human labour is realized and materialized in it. How then to measure the magnitude of its value? Through the quantity contained in it of 'value-producing substance', labour. The quantity of labour itself has its measuring rod in particular intervals of time, as an hour, a day, etc":

Of course this definition leads him at once into glaring paradoxes, which he pretends to explain away. In the very next paragraph he mentions one; it would follow from the paragraph quoted that 'the lazier or less skilled a man was, the more valuable would be his goods, since he takes longer to finish them'. He attempts to get over this by giving another, and quite inconsistent definition of the measurement of quantity of labour, in terms of "*Arbeitskraft*", human power to work. This new conception is thus subtly introduced now because to introduce it from the beginning would have destroyed the very suggestion upon which the success of his propaganda depends; viz: the sympathetic conveyance to the minds of the 'proletariat' that to each of them his labour, per hour, is a 'value' which really remains his property when it becomes embodied in the goods he makes, and of which consequently he is robbed by the capitalist who employs him, at least in so far as the capitalist makes any profit, so far that is as he sells those goods for more than the wages he pays.

By this subtle introduction of the conception of human 'power to work', the exercise of which power per hour for so many hours give the amount laboured, and so the value produced, the theory becomes rather more plausible. It begins in fact to show certain striking analogies with the theory we are here proposing to sketch; at first sight the two theories seem almost converse to one another. Instead of saying that the value of a piece of goods lay either in the work put into it, or in the power to work expended on it in the past (forms of expression of which the first suggests the mere making of a picture, but the second a formula, to be interpreted), we say that it is the possession of a piece of goods which gives to the owner a power to make somebody else work, in the future; that is, not a retrospective power given in the past to somebody to make the goods, but a future power of making somebody else do something else. With our way of putting it we see at once how it is that the power to make men do things becomes a value, one by which we may obtain other values; and we also can see what is meant by the 'possession' of a piece of goods by a man, and how this comes to give him

power to make another man do anything; points which Marx did not understand, or about which he remained studiously silent if he did. But from Marx' theory all this sort of analysis is conspicuous by its absence. What he does is to take a familiar word, "*Arbeit*", labour, and make a picture of it; he hypostatizes it right away, into a Thing; or, on second thoughts into a group of things, for he passes the things in review, when he talks of measuring labour by the hour. And not only does he conceive such groups of things as being transferred from place to place, in a metaphorical sense at least, by assuming one or other of two different transformation systems for them, or as we might say by cataloguing them in two different (though both of them arithmetical) ways, as values; but he goes on to conceive the values so obtained as being transferred in some unexplained manner to the objects which, to smooth over this difficulty, are called the 'products' of a man's labour. In such an object therefore the value of work done on it by a labourer is supposed to reside, even if it is not supposed to reside there for ever, or without any gradual fading away. It there resides in the sense that, when the 'possession' of the object is transferred from one owner to another, the value goes with it. Moreover, inasmuch as in general several labourers will have had a hand in the 'production' of the piece of goods, such values in any one object may accumulate, by addition, to a larger total value; which Marx calls the 'use-value' of the piece of goods or object produced. He at once makes to himself a picture of this use-value; and confuses it with the piece of goods itself, and in the opening sentence of the paragraph quoted above, he first talks of 'use-value or piece of goods', and then he says that it 'has' only one value, and this is the sum-total arrived at by the second of his methods of computation, as he subsequently explains.

Now let us suppose for the sake of argument that by either of his methods of computation of the value of a man's labour, either by the method put forward for propaganda purposes, or by that substituted in the next paragraph to meet scientific objections, we could arrive at a plausible estimate of a value for it; and that his employer, not, let us say, a brutal capitalist,

but a beneficent socialist government, gave him for it an equivalent value as wages. Let us test Marx' theory by an illustration. A and B are two neighbouring coast towns; and the elected representative of A puts before the government a scheme of harbour improvements to cost £50,000. Naturally the representative of B does not wish to be out-done, so he also puts in for another £50,000, and a scheme for his harbour. The government is weak; and, though maybe it is of opinion that the A scheme is the better of the two, and that both are not needed, by dint of lobbying or otherwise both schemes are accepted and carried into effect. And we will suppose further that in each case the whole of the £50,000 is expended fairly according to Marx' revised system of computation, in wages to local labour. But then it turns out that, for reasons we need not enter into here, all the shipping prefers to go to the new harbour at A, and none, or practically none, goes to B. Are we nevertheless to say that the 'use-values' of the two harbours are the same, and each equivalent to that of 50,000 of the standard coins of the socialist state? Of course, if 'use-value' were merely a technical term, symbolically defined, this might be logically correct; but it obviously would not then serve to justify the conduct of the B representative, or of the government as a whole; and what we require from philosophy is guidance for our conduct, not mere symbolic correctness. And I think further that we might pass a moral judgment on this sort of theory, and say that it was immoral, for it was intended to deceive; if only for the purpose of putting money into the pockets of labourers in the town of B.

I have selected this illustration specially because, harbour works being immovable things, the question of exchange-value, as distinguished from use-value, is practically eliminated. But in the illustrations given by Marx this is not in general the case. For instance* he gives:

20 yds. linen = 1 dress = 10 lbs. of tea = 40 lbs. of coffee = 1 quarter of corn = 2 oz. gold = ½ ton iron = etc.

The shifts** by which Marx attempts, or pretends, to make good his promise*** that his theory will show that exchange-

* *Loc: cit*: p. 30. ** *Loc: cit*: pp. 21 and 22. *** *Loc: cit*: p. 5.

value and use-value come to the same thing in the end, are simply ludicrous, and not worthy of serious study; whether they are to be accounted for by lack of ability, or by lack of honesty, I do not pretend to say. But, assuming the former, it is sufficient to say that the real import which he certainly professes to give to his theory, is not verified or verifiable, by trial and error; and that therefore as pragmatists we have no use for the theory. Very much the contrary indeed; I doubt whether another example could be found in history of equally disastrous effects produced by the successful sympathetic communication of 'values'; communicated to enormous bodies of human beings, binding them together into organizations and into organisms; while those values were not supported by experience, nor acted upon on any reasonable principles; or by any process of reasoned explanation which could bear philosophic analysis. That in fact the propaganda popularly associated with the name of Karl Marx, whether or no it had in fact some more profound origin, has infected a great part of the 'proletariat', as they call themselves, of the Western hemisphere, if not of the world; even if it is not, or is no longer, believed in by the Bolshevik leaders; seems to me, however, to be pretty conclusive evidence of a serious mistake somewhere in the philosophic analysis which has hitherto been applied to it.

If now we turn to our own theory, we note at once that in it technical 'values' are not things that can be bandied about, from pillar to post, or from mind to goods and back again. When we speak of 'sympathetic communication' of values, it is from mind to mind only; but even so we are speaking only of 'communication', not of 'transference'. What we are really supposing is not even that a value arises in one mind 'like' to a value in the other, only that each of the two values, each of which, be it observed, remains in its own mind, determines in that mind choices or conations which have 'like' results. Although we may indeed say that such values are pictures, and nothing more, made by each mind to itself, that is just the reason, as we have seen, why we can not make a calculus of them; still less conceive them to be trans-

ferred to inanimate objects, as Marx, without any attempt at analysis, gaily proceeds to do. What we do is more like the converse of his sketchy procedure. We postulate tokens, which we call money, or money-values, which are just such things as can be bandied about, even if only in imagination; but it is this bandying about which enables us to form a calculus of them, and one by which we can apply them, metaphorically, not indeed to all objects, but to the kind of objects which come under the principle of private property. And we find, by trial and error, that for many purposes, and very approximately for most of them, we may deal with these money values as tokens representing the real psychological values of the class ' power to make men do things '. Let us try to apply these principles in a few instances, in order to bring out some of their more important characteristics.

Perhaps the most notable distinction between this theory and that of Karl Marx is that to us a ' value ' is always a ' value to a particular mind ', or one to a particular ' organism ', which is a group of human minds organized into an unity. Next in importance, perhaps, is that our calculus makes no profession of dealing with ' values ' in general, but only with a limited class of them, given by the formula ' power to make men do things '; and consequently at the very commencement of our theory the nature of this power has to be analysed; whereas in Marx' theory it is merely taken for granted, for the purpose of abusing it. The importance of the principle of private property follows immediately from this; and it is advisable to consider it a little more closely. It no doubt rests primarily upon:

> " The good old rule, the simple plan,
> Let him take, who has the power,
> Let him keep, who can ".

modified, however, by various conventions or principles more or less firmly established in all human societies; even in those which most aggressively call themselves communist. For the utmost any communistic society even professes to do is to regard all property as owned by the community as a whole, to be disposed of in this or that way by that whole as an

' organism ' or unified body of minds. Of course any individual man might profess to go a step farther, and deny the rights of property to the community as a whole also; such a person we should call an anarchist, of an extreme type; he would indeed depend only on the ' good old rule '; but he would not belong to any human society or organism, and there would be no point in talking about the things he ' took ' or ' kept ' as properties belonging to him, any more than we talk of the rabbit as ' belonging to ' the eagle which carries it off, or the air we breathe as belonging to any one of us, or even to the whole of us human beings as an organism.

The fact is that, quite apart from any ideas of altruism or morality, the conception of ' property in ' a thing, or of a thing as ' belonging to ' an individual or an organism of individual human beings, though it may rest primarily on the ' good old rule ', rests also secondarily a second principle, that of the transferability of property. We must not as yet say ' exchangeability '; we have not come to that yet, though to the hide-bound legal mind the two things may seem to be the same. Marx naturally does not see this point, for he makes no attempt to analyse what ' property ' means; but it must have occurred to any lawyer that at least in the case of property passing ' without consideration ', as on death, what passes is not a material thing, but only power. I have no doubt that sayings to this effect are to be found in books on law; but possibly it is not noted in them that in reality the kind of power which passes, is not power over the material things ' possessed ', in a literal sense, but only power over them indirectly, by way of power to make men do things. For example the ownership of a cricket bat gives me no more power over it physically, than I should have if I had borrowed, or even stolen, it; I shall not for that reason be able to make any more runs, on any occasion on which I go in with it. But on some other occasion, if the bat is not mine, its owner may perhaps prevent me from using it; or perhaps he may make me pay for the privilege of using it; his power of ownership appears therefore as power to make men, me for example, do, or not do, things. But if this is so in the case of a thing like a cricket bat, which can be ' taken '

and 'kept', how much more evident is it in the case of something which can not, in the literal sense of the word, be taken, away, at all. Such for instance as the ownership of land; if, metaphorically, we talk of 'taking' with respect to it, it is not taking away, carrying off; even if the possession of it passes '*vi, et armis*', that is a making men do things; and the peaceable retention of it afterwards, or its peaceable transference on death, or by sale, is nothing but a transference of power, i.e., the power of the organism we call the State, exercised through the police and the law; and this is a power to make men do things. If then we regard money, or money-values, as tokens, standing for this kind of power, it becomes evident at once how our calculus of money-values comes to apply to 'property' in things; whether they be things which can be carried away, like cricket bats; or things which can not, like land, or harbour works; whether they be things which can be consumed, like corn or wine, or things which last practically for ever like gold, or an object of art. We can apply it to things intangible; rights, like a right of way, or a patent right; powers, like that of a great prize fighter, or of a great orator or journalist, or of a beautiful woman; all of them may be regarded as properties, provided that not only do they imply power to make men do things, but also that that power is transferable; from one mind to another, or from one living organism of minds, to another. All of them are amenable to the calculus of money values; all of them, in vulgar language, have their price.

Only, as soon as we begin talking about 'price' we have in fact jumped on to the 'exchangeability' of property, and not its mere transferability. And it is worth while to go back for a moment, to consider cases where property may be transferred, without any other property being taken 'in exchange'; the notable feature in such cases being that they are not in themselves amenable to the calculus of money values, merely in virtue of a transference having taken place. For example, the passage of a property on death, or by deed of gift, may be carried out legally without any reference to money values; even if some hide-bound lawyers think it necessary to specify

some 'consideration', expressed as a money value such as 5/-. And a thing, whether it has money value or not, even if it actually is itself money, may be 'appropriated' validly, and even legally, without any exchange; as was expressed by the famous phrase "*Prise de possession de fait*", used when Madagascar passed into the possession of France. There may be property in such things, but insofar as they pass from one ownership to another only in such ways as these, they have no intrinsic 'price', even though for taxation purposes a fictitious value in money may be assigned to them; a money value which notoriously is often very different from the 'market value', if for any reason the property 'comes into the market'. We have seen that there may be property in such a thing as a patent right, which may have an exchange value in the ordinary way; there may even be property in the same sense in, say, a secret process of manufacture, where the formula for the process, owing perhaps to its length and complexity, can not readily be memorized or 'carried in one's head', as a 'picture'. But property in a secret in the more ordinary sense, such as the combination to open the lock of a safe, though it is useful to make men do, or still more to prevent men from doing, things, and is also transferable from one man as owner of the secret, to another, has this peculiarity, that it can not be transferred back again; unless possibly by hypnotic suggestion, or some extraordinary process. It is not as easy to communicate ignorance, as knowledge. This seems to put property in secrets into a class by itself; but it is in fact only a sort of border-line case between ordinary property, and property in knowledge generally. For knowledge which is not secret, what we call 'common knowledge', also very generally has power to make men do, or refrain from doing, things; and yet we do not talk of anyone having property in it, except in so far as we regard it as in some measure secret, or 'esoteric' knowledge. The reason for this is not because, like the air we breathe, anybody can make use of it, without interference from the police; but because we can not, in any strict sense, be said to transfer such knowledge from one mind to another. Here the common sense of mankind seems to have anticipated

a notable feature of the analysis given here of how communication between minds comes about; namely that each mind actually pursues a different train of thought; no thought or value can really be said to be transferred from the one mind to the other; by getting to the latter, it does not leave the former, and the latter can not divest himself of it again, by handing it back to the former. The knowledge, whether we regard it as a picture or as a formula, may indeed be called an 'acquisition' of the mind to which it has come, or which has worked it out; it has a value to the mind which in this sense may be said to 'possess' it; but this is quite a different sense to that in which we are said to possess things of the ordinary types referred to above, which are transferable, in the sense that "the more there is of mine, the less there is of yours".

When, therefore, we pass on to talk about prices, and a discussion of the calculus of money values, in short when we come to the theory of economics, we note, possibly with surprise, that our theory has found us an immense amount to analyse before ever reaching the elements of ordinary theories of economics; most of which, like that of Marx, take the conception of ownership for granted, even when they are ostensibly discussing the right of property, or 'capitalism'. That I have not myself come across in the writings of any economist a clear recognition of the intimate connection between the power of the executive government and proprietory and money values, and still less any of the intimate connection between individual free will, individual power to make men do things, directly or through the power of the executive government, and proprietory or money values, may very likely be due to my ignorance of economic literature. But there can hardly be any very general recognition of these elements of the pragmatic philosophy here adumbrated; for if there were it would show itself in a very general re-casting of the popular economic formulas of the day; even in the popular *clichés* which determine elections. While avoiding politics as far as possible, for we are not concerned with current controversies between those who hold office, and those who are out in the cold, it is worth while before closing this article

to give one or two illustrations of the general economic outlook which it implies.

Actual money, then, consists of tokens of a special kind, standing for power to make men do things; power, that is, of the owner of the money, his ownership being assured to him by the law of the land, whose power he may, under appropriate conditions, make use of in place of any physical power in his own muscles, or mental power given by cunning or force of character. Property in other kinds of things depends in a similar manner on the enforcement of the rights of private ownership and the sanctity of contracts. The way this works may be sketched thus. Ownership may be legally transferred by one man to another, at the option of the former; and as the power to make men do things has a psychological value for most men, the transferee may be willing to do things in order to induce the original owner to transfer property to him. Generally that property takes the form of actual money, called wages, and the employer and employee make a contract with one another, which the law of the land will, if necessary, enforce. What the employee gets, it should be born in mind, is tokens, standing for power, now his own power, to make yet other men do things; carry him home in a tram, provide him with food and drink, and so on. The actual coins, or pieces of paper, are mere tokens, and they are so just as much if they happen to be golden sovereigns, as if they are only I.O.U's; provided he can get other men to do for him the same things, in any case, by exchanging them, either for services, or for other tokens which, he hopes and believes, might some day be exchangeable for services. This is where the analogy, and also the difference, between this and the Marxian theory comes in. In both of them services, and labour, are conspicuous; and Marx might even, on second thoughts, be said to substitute for the mere conception of labour, that of power to do things; only in Marx' theory that power is the power of the labourer himself, whereas in our theory it is his power over other people.

In this illustration I have, however, for the sake of simplicity, assumed that the labourer uses all his wages for the purpose

of making other men do things, and there is indeed a sense in which we may regard him as doing so in most cases, virtually, if not directly and immediately; and this sense it is which apparently bears so close a resemblance to the theory of Marx. Curiously enough this appears most obvious just in the case of a 'proletarian' living from hand to mouth; the very class which Marx contrasts most strongly with the 'capitalist' class; although to this extent the proletarian is acting as a capitalist. It may indeed be true that such a man, if married, or with a family growing up, may only employ directly persons to whom he himself pays no wages, namely his wife or children; but Marx could not count this to him for righteousness, since it would make him worse even than the ordinary capitalist; it would make him into a slave-driver, and his family into slaves. On our theory however the wife and family, together with the wage-earner himself, would appear as one unified organism, only one part of whose function was wage-earning; the wife, and possibly some of the children also, doing their bits for the common weal, and owning the wages earned by the husband in common; even though possibly he might be the leader in the organization, and have the greatest voice in their disposal. And in disposing of them we may suppose the wages to be expended to make other men do things; for the man and his family; the baker to bake, the brewer to brew, and so on; not forgetting the builder to build, if he owns his house; or, if he does not, he spends part of the wages, not exactly on making the landlord do something, but on preventing him from doing something, namely evicting him.

So far the explanation seems to be very similar to that of Marx, for it seems to suggest that what the proletarian pays for is labour expended by other people on the goods he buys; so that the difference between the two theories seems to resolve itself into a question of date only, even if we choose to restrict the 'power to make men do things' to doing them in the future, instead of the past. In the last paragraph what I wrote was that "there is indeed a sense in which we may regard" the labourer as a capitalist, making men do things with his wages.

The sense is however a rather metaphorical one, the words must not be interpreted too literally. When the labourer buys a loaf of bread, he is not directly making the baker bake that loaf in particular; if you make to yourself a picture of him as doing so you will be led into confusion. But the labourer who buys a loaf is doing his bit towards carrying on the baking industry; and so he is indirectly making the baker, or some other baker, bake more loaves for future comsumption; not perhaps of that particular labourer, but of somebody or other. If we try to drop the purely individualistic attitude of mind, and think more in terms of unified organisms of human beings, we see that the pennies the labourer expends on a particular loaf, are tokens of a bit of power in his particular mind, expended by it, as one bit of the social organism, to make another bit (which we call the baking industry) do things. Consequently we see that on our theory, in contradiction to that of Marx, the relation of money values to labour is not to completed labour of the past, but to anticipated labour of the future. The connection between them is not to be represented as the accumulation of bits of past labour inside an object purchased, but as a contemplation of values producible in the future as the result of the exercise of a power transferred from the buyer to the vendor. And we find, as on our theory we should find, that prices are not in practice regulated or even appreciably influenced, by labour expended in the past; but they are appreciably influenced, although not solely determined, by anticipations about labour to be expended in the future. This anticipation, this significance attached to the future, rather than to the past, is indeed connoted by the use of the word 'power'; and it is by surreptitiously introducing the word into his revised criterion for the measurement of labour, that Marx succeeds in giving to it such plausibility as it possesses. In our analysis this connotation is vital, fundamental; and it is introduced from the very beginning, in the conception of choice; when I conceive myself as trying to understand, only in order to ameliorate my *future* mental states, not with any hope or desire to ameliorate my *past* ones. We conclude therefore that in purchasing consumable stores the labourer may

be said to be acting as a capitalist, though hardly as an individual one; he is, as it were, a share-holder in a capitalistic company, carrying on the bread and beer industries, and so forth.

But there are other ways in which a labourer might spend a part of his wages, which do not in the same way assimilate him with capitalists, as such, but do assimilate him with the 'idle rich'; who doubtless are equally hateful to disciples of Marx, when they use that name for them. A labourer, like one of them, may purchase a thing without any idea in his head about making men do things in the future, or any idea which would be likely to produce such a result, and it may be that in fact no such idea does influence the price he pays. It is easy to cite any number of instances in which this is approximately the case, or probably the case, even if it is difficult to hit upon an instance which everybody would regard as crucial. If, for example, a man buys a valuable diamond, we might have such an instance; he might buy it to make an heirloom in his family, and his family as well as himself, might value it solely for 'the giddy pleasure of the eyes', without ever a thought of any power to make men do things which its possession gave them; for they might regard all contingencies in which such a power could be exercised as barred out by the fact that it was an heirloom, and could not therefore 'come into the market'. If we accept these suppositions, we must say that the diamond would no longer have a money value, though it might, and would, have other values, e.g., the 'giddy pleasure of the eyes'; we must say that a considerable money value has just been abolished by the action of the purchaser, and that it has ceased to exist. But no doubt people might try to avoid this conclusion, by saying that this, or that, could not, or would not, be done; that the family would not value the diamond only for things which had no money value, in particular they would value it for what is vulgarly called 'swank', the essence of which is pride of possession, that is pride in the very power to make men do or not do things; to make policemen guard the diamond, and prevent burglars from stealing it. I am afraid it must be acknowledged that in the case of diamonds, even if made into heirlooms, this

would be the case. Let us try to amend the instance; let us substitute a picture by a great master, and instead of making it an heirloom, let us suppose the purchaser presents it to the National Gallery, anonymously. 'Swank' is eliminated; but another objection may be raised, namely that some day the picture may after all come into the market; even if we can never doubt the integrity of future British governments, there is always the possibility that we shall not muddle through the next Great War; if we had lost this one we may hope that our government would have sold the treasures in the National Gallery rather than break faith with their creditors in the way the government of Germany did. We may mend our instance once more; this time take the purchase of Burnham Beeches by the corporation of the city of London, and its presentation of it to the public. In this instance we shall probably all have to agree that the money value reckoned by the purchase price, is no more; it has clean gone; even if we had lost the war it could not in that case have been recovered by selling the place, it would not form a realizable asset to help in any appreciable degree the payment of our creditors.

But is there any object in trying to find a crucial instance? The apparent object is in fact only a dialectical device to avoid a conclusion which it is dimly seen may have very significant implications. The conclusion, namely, that money values may sometimes be abolished; that is that they are not like all those other things which common sense from time to time has taken to be indestructible. And when I here say 'common sense' I must include in it the orthodox sense of the men of science of the time. I do not, of course, wish to imply that this is to include the men of science of the 20th century; they are above criticism. But we can file a long list of things considered indestructible by men of science of past centuries, as well as of some so regarded only by the man in the street, or by theologians. For example, an atom, mass, momentum, energy, etc., etc. The fact is our inveterate habit of making to ourselves pictures naturally produces this result; we make use of a word, originally of the kind we call 'abstract' but immediately we conceive a picture of it as a thing, existing. As we can always

think of the thing again, we can always think of it as existing; what more natural therefore than to say that it always exists; c.f., the paradox of Achilles and the tortoise. If however we try to think in formulas to be interpreted, not in static pictures to be accepted bodily, there is nothing difficult at all in thinking of money values as being sometimes abolished, and at other times being made '*ex nihilo*'; that we are justified in so thinking may be shown in either case by trial and error; it is not necessary that any one instance tested should be 'crucial'; while the positive instances, in which money values are made out of nothing, serve as verifications of the same principle as do the negative ones, where money value is abolished.

The practical consequences of this principle are far too many, and far too important to human welfare, to be dismissed in the few remaining words I can put into this chapter; they must be reserved for future consideration. But merely to indicate more clearly the nature of the principle I will just give one positive instance of its application, as food for thought. Before the Great War many people were flattering themselves that there never could be a great war again because under modern conditions it would cost so much that in a very few weeks both sides would be unable to carry on, for want of money. To prove this they attempted to calculate how much money each of them had got; how much per day war would cost, and so how many days it could last. In England, for example, the income tax brought in so much, which, capitalized, came to so many hundred millions; something was added for other realizable assets, and so on. The implication, even if not expressed in words, being that the capital was money, stored somewhere in heaps, to be brought out when needed to pay wages of munition factories, as well as support of the army. If that had been so, no doubt the capital would soon have been exhausted; but it was not so. The capital consisted in power to make men do things, it was mental, not material power. When the war came, it was manufactured *ex nihilo*, if we must make to ourselevs a picture of it; but it is much better to say that so long as the government had the will to win, and could by sympathetic communication, or otherwise, communicate that

will to the people, in the munition factories as well as at the front, so long could it continue to carry on the war; whatever number of monetary tokens it might make use of to facilitate the process, to grease the machinery as it were. The situation, that the nation was willing to carry on the war, but could not do so for lack of capital or money, could not arise; because the willingness to carry on would just be itself capital, it would be the power of the government to make men, at the front and in munition factories, do things. The decision in the war would come only when one side in it had deprived the other of such willingness, by imposing its own will; for, as von Clausewitz wrote, just a century ago, " War is an act of power, in order to compel the opponent to carry out our will ".

VII

THE "DIVISION OF LABOUR"

I wonder whether I have succeeded in interesting the reader so far? What I am afraid of is that the theory I am trying to suggest may seem too much like the ordinary common sense of the man in the street; in which case either it will merely bore him, for he will think that he has heard it before, even if he agrees with it; or else, if he is imbued with scholastic preconceptions which might seem to justify him in ignoring it, he will think that however specious it may sound, it must contain a fallacy somewhere or other. I am afraid that it may be said "The saying that 'money is power', is as old as the days of Croesus, at least; the function of money in the organization of industry was described by Adam Smith, under the title of the 'division of labour'; the refutation of Marx' theory was quite unnecessary; we all knew that the Bolsheviks are the enemies of Society, and I hated them already. As to the apparent creation of capital during the Great War, it certainly seems that Mr. Norman Angell has been proved wrong about the amount of money available in an emergency, but after all the 'wealth of nations' has always been an obscure question, and the economists may have made an error which really is one of degree only, and which does not need any brand new theory to explain it, even if there is anything very new in this one". If the impression so far should be of this character, then it seems to me that what is required is not so much to give further illustrations of the ways in which the theory may be applied in the affairs of every day life, as well as in great emergencies; it is not merely to pile up yet more static pictures; but it is to ask the reader to think rather by means of active formulas, and to guide his active thoughts, and eventually his objective deeds, by them. For example, take the phrase 'money is power'; do not accept it as a mere static existential proposition, an item of mere 'knowledge'. The question

is, taking it as a formula, what would it make you do? Would it make you think "If only I had money, I could make that fellow do it", or "England has not got the money, it is no use her attempting to defend the neutrality of Belgium"? Or would it make you think "That fellow has got to do what I want; if I make him do it I *ipso facto* have what money stands for, since money is only power, and whether that money is represented by any material token or not is of no pragmatic importance". Or to take the greater illustration, England went to war first, and she got the requisite money in consequence of her will to act, afterwards. Is the difference clear? I am not out to help you to make to yourself pictures; I am out, if possible, to think out with you a theory which shall aid us in guiding our conduct.

Let us, therefore, pass on to that other famous phrase, the 'division of labour', and think of it also as an active formula. No doubt this is, to a very large extent, what Adam Smith and the economists who have followed him have done; they looked on it as embodying a rule for the guidance of conduct in organizing industry; and even though the rule was in practical use before economists ever formulated it in words, it is certainly useful to have it so formulated; the written or spoken formula itself may aid captains of industry in whose minds it is available for use. But by itself it is defective, in that it is only an analysis, which remains incomplete without its corresponding synthesis. To organize industry it is not enough to divide labour, it is quite equally important to unify it; to re-combine the divided labours into an unified effort; and this aspect of the problem of the organization of industry is very little discussed in economic literature, just because, if it is referred to at all, it is referred to as a question belonging to politics, or sociology perhaps, but one which is not strictly an economic one. But looked at from the point of view of our theory it is strictly an economic one; in that the unification of effort in industry has just as much, or just as little, to do with money, as has the division of labour. The formula 'division of labour' implies a leader who divides the labour, that is distributes to various labourers under him the 'bits'

they shall contribute towards the common effort; but by our theory it is the very act of so communicating values which unifies, for the purpose in hand, the minds of leader and labourers; and, in organized industrial company, unifies the whole organization into an organism. Only it is here, or, so it seems to me, that the ordinary economic theories diverge from that here put forward; it would seem as if, even though they might admit the unifying effect of the communication between the minds of a leader and one individual subordinate, they would admit it only in some metaphorical sense which would enable them to avoid being dragged into an admission of an 'organism', as anything more than a metaphorical term, whose implications might be discarded whenever they proved inconvenient. Now I am not saying this as a criticism of their attitude; I am only trying to express what I believe their attitude to be; and if I am right their attitude is, as far as it goes, quite justifiable by the pragmatism of my philosophy. It might be expressed by saying that an 'organism' is not to be taken as a mere static picture; but as a formula, which was not demonstrable independently of experience, and would have to be modified or abandoned, if by trial and error it were to be found not to work. I should only begin to criticize if they insisted on taking an 'organism' as a mere static picture, and refused to submit the problem to the verification, or otherwise, by trial and error.

But here again it seems to me as if scholastic preconceptions, or perhaps nothing more than the inveterate habit of making to oneself mental pictures, has led ordinary economic theory astray. The man in the street might say to himself,—"How easy it would be to shirk the rather metaphysical puzzles about existential import, or the reality of abstract terms, if in discussing the organization of industry we could leave out anything about human wills, or the making of men to do things, and base our economics on 'natural laws'. Is not this pretty much what Newton did for the science of astronomy, by his discovery of the natural law of gravitation? Let us too have a 'natural law', say of supply and demand; and we then need no more bother about the unification of human minds for a

common purpose, than we need go on talking about the malign influence of Saturn, or the desirable influence of the planet Venus ".

Quite so :—unless, that is, it should turn out that the more profound theory is really better adapted to guide our conduct, than the apparently simpler one. And this, even supposing that the more profound theory actually is less simple than that of the orthodox economics of to-day. I myself doubt whether the man in the street would find it so, if he started in each case with an unbiassed mind to study them. He in fact already habitually uses phrases which show that he realizes the significance of the unification of bodies of men into organisms, and often a clearer perception of the part played in such unifications by money, than would follow logically from the theories of orthodox political economy. He often uses phrases which imply a rebellion in his mind against orthodox economics; in part perhaps such rebellion may merely be due to impatience of control by reasonings which he has not taken the trouble, or does not possess the ability, to understand. But in part at least I believe that it is due to an instinctive recognition by common sense that the economists are too apt to make to themselves mere pictures, and that their pictures, even if read as formulas, have not been duly verified by trial and error, and can not always be counted on to bear that test. Such phrases as " You can prove anything by statistics ", " An ounce of fact is worth a pound of theory ", though on the face of them almost contradictory, both indicate the same attitude of mind in the man in the street; and both, when applied, as they frequently are, to economic theories, indicate that the man in the street would not be averse from introducing into economic theory consideration of human pleasures and pains, human psychological values, and choices, and their causes in individual human minds, together with the ways in which they may be unified, as a foundation for economic laws. It is not from the man in the street that any objection would come; but it might come from one whose life had been devoted to teaching orthodox economics, and who might be chary of admitting new ideas, lest he should perchance have to revise the habits of a lifetime.

Perhaps one of the chief reasons which make it difficult for us to realize, or make it easy for us to ignore, the reality of the unification of minds in organisms, such as industrial companies for example, is the fact already adverted to that organizations are most often successful if they are under the guidance of a single man as head. For this makes it easier to look on the organization as a simple chain of command, or even, if the chain of information can not be ignored, a mere double chain, of links each of which is at most only an unification of one pair of human minds. It does in fact commonly happen, even if an industrial company is nominally under a Board of Directors, of whom no one has been appointed a Managing Director, that one member of the Board, who need not always be the Chairman, is really the directing spirit, the leader whom the others follow; and if we comfortably convince ourselves that this must really always be the case, even though no member of the Board could say which of them was the leading spirit, the conception of the unification of minds has perhaps become so attenuated that it can not much matter whether we admit it or not. Again we find ourselves in a position where it is difficult to find a crucial test case; either among individual companies, or even in other human organizations. The advantages of at least nominally unitary leadership are very generally recognized, as in the institutions of monarchy, or in the position of the Pope of Rome. And even in governments most opposed in theory to individual leadership, it might be explained in almost any instance that there was a single directing mind, a *primus inter pares*, even though it was changed from time to time; even the Dictatorship of the Proletariat began as the autocracy of one man, Lenin; and for all I can tell there may actually be one leading spirit now, whose real or assumed name, however, I do not know. But there are so many cases in which an explanation of this sort would be so obviously forced, that we can not profess to call it a general rule. Take for example the great organization of the Freemasons; which I think anybody would think worthy of the name of an organism, even though, like I myself, he did not belong to it, and even though he admitted that occasionally dis-unity had shown

itself in its ranks. For in this instance the unity of the organism as a whole is not apparently maintained by any active chains of command or information; it is maintained rather by a community of values entertained by individual freemasons, or perhaps we might better say by individual lodges of freemasons, for within each lodge I understand there to be quite evident chains of command and information. And the community of values which unites the whole into an organism is a purely mental bond, which does not in any appreciable degree depend upon the power to make men do things, though that too is only organized mental power. The bond must in the main be regarded as having been disseminated by the sympathetic communication of values, by what is now-a-days commonly called 'suggestion' from one mind to another. And thus, although this great organism has, I believe, no single head, no one man like, say the General of the Jesuits, and, so far as I know, no single central committee or Board of Management, yet it is recognized and feared by other organizations and organisms as capable of influencing the welfare of nations, and as having 'a will of its own'. So also it may be said that a Company has a will of its own, though proverbially it has no suitable place on which to be kicked.

This last consideration, even though vulgarly expressed, may well give us furiously to think. It leads us to think of what is meant by Responsibility; as we all of us make to ourselves pictures of it, for which reason we write it with a capital R. Just as the crude old economic theories ignored the significance of human volition in accounting for money values, so those crude old theories, and equally crude theories of sociology, are apt to ignore the significance of responsibility, as it should appear in a really efficient pragmatic theory. For though it may not appear when looking at a picture of a *de facto* organization, as soon as we enquire how that organization arose, and is carried on, as a formula, it becomes conspicuous. This again is clearly realized by the common sense of the man in the street, and is expressed in the well known formula 'Power and responsibility should never be divorced from one another'. This rule is generally acted on in industrial concerns, at least in the successful

ones; and it is frequently departed from in government offices; frequently to the great detriment of the community, and with the result that it is generally recognized that in anything like an industrial or trading concern private management is far more efficient than that of the government. This is generally accepted as a pragmatic verification of the rule; but a more detailed analysis in the light of our theory may provide us with other reasons for accepting it, other verifications of deductions from it, and a clearer understanding of what it means.

Like most words in common use the word responsibility is not always used in the same sense; as may be seen by looking it up in a dictionary. For our purpose I propose to use it as the analogue and counterpart of our own technical term, 'power to make men do things', in discussing the organization of human organisms; and so we have only to substitute more particularly 'power to make men do things' for the single word 'power' in the formula about power and responsibility, to make its application in our philosophy clear. Power to make men do things is in our theory to be regarded as a mental condition, or faculty, in a particular human mind, or human organism, which at any moment, or for any purpose, may be regarded as inherent in it, even if it is not actually in use; and in an organized community part at least of that power may be regarded as having been 'given' to it, by the organism which is the civilized community, through the police and the law; while similarly we may talk of other parts given to it by 'suggestion' from another mind, or in virtue of aid obtainable from other men, either under contracts enforceable by law, or 'for love', or otherwise. But on the other hand the man who in this sense has power to make men do things, is not in general quite free to exercise such power. In so far as it has been 'given' to him, it may have been given with expressed or implied obligations; but apart from how the power came to him, he may be influenced in exercising his power by principles enforceable by law, and by others which he may have voluntarily accepted and determined to keep, or which may with him be mere habits, for which he might find it difficult to account; amongst the latter there might be the

effects of suggestions from other minds, closely analogous to hypnotic suggestions, or indeed actual suggestions under hypnotism. All these things would hamper the freedom of his will, if he tried to make other men do certain things; or might spur him on to make them do certain others in preference. Collectively these values constitute what we call the sense of responsibility, it is an emotion having a peculiar feeling-tone of its own, which we can recognize when it comes to us. I may indeed in a vague way speak of it as greater or less on different occasions, and I may in a similar vague way speak of setting it off against the power to do things which I should otherwise feel myself to possess; but it is no more amenable to a calculus of psychological values than is my psychological feeling of power or of love. And as a matter of fact we do not ordinarily attempt to measure our responsibilities by the calculus of money-values; in the special cases in which we do so talk of 'liabilities' rather than responsibilities; as also if we attempt to measure psychologically mental power in general, we can not apply the calculus of money values, except indirectly in the case of power to make men do things, and then only in an approximate manner, as what we call the 'assets' of an individual, or of a legally constituted company, or of an organization which has powers and responsibilities regulated by custom or mutual understanding, if not by law.

We were however considering more especially the powers and responsibilities of a single man, in relation to a human organization or organism of which he was a member. In a simple case we think of the man as receiving from those above him both powers and responsibilities appertaining to his office; though this is rather an ideal simplification of the problem, the point of which however is its exemplification of the aphorism quoted about the divorce of responsibility and power. If the higher authority has to select a man for a job, he has to lay on him certain responsibilities; namely, in the first place, to get his job done. It may not be necessary to add to the powers the man already possesses; in the case of a mere labourer for example, his own powers may be considered sufficient, though even then, by the chain of information or otherwise,

the higher authority will have to assure himself that the labourer actually has the power required; that for example he is not a cripple, or sick. So also it may not be necessary expressly to impose any responsibilities upon him, the responsibility of working for his wage may go without saying. But a little higher in the scale, even in the case of a foreman of a gang, both power and responsibility have to be added; power to order men below him, and consequently responsibility for the work of the gang. What the aphorism intends to convey is that it is bad to give the one without the other. It is foolish to give a foreman power, and then accept the excuse for not getting his job done that one of his men was lazy. It is equally foolish to expect the foreman to be responsible for his gang, if the men of the gang are given orders directly by the overseer, of which the foreman knows nothing, even if he does not disapprove them. So in greater matters, the head of a department must be held responsible for the work of that department, and must be given the requisite power; short-circuiting from people above, to people below the head of the department, whether along a secondary chain of command, or along one of information, is generally to be deprecated; or only permitted in particular and well thought out cases.

All this flows indeed readily enough from our theory; but perhaps it is already so commonly accepted that the support given by our theory is superfluous? I am inclined to think that as far as this branch of the theory is concerned this may be so; only I should put it rather differently. I should say that common sense had already anticipated this part of the theory; for when talking about this part of the organization of industrial or political organizations, as also in the case of military ones, people are not thinking of money, or of the meaning of ownership; or of how these things may be connected with power, to make men do things or otherwise, or, through that power with choice, and freedom of the will. They are thinking of mental power, choice, and free will, directly, not indirectly, as represented by objective tokens. The power or responsibility given to the holder of an office are regarded by common sense in just the way described here, but common sense also recognizes

that it is not every man who is worthy to receive them; they can not simply be handed over to him with the office furniture. He has himself first of all to possess certain powers and abilities and experience; and also he has to have already accepted certain principles, greater than the few elementary ones enforceable by law, if he is to be acceptable as a candidate for office. If his post involves manual as well as mere 'office' work, the conditions are not materially changed from our present point of view; a little more skill is required, and perhaps a little less of the so called 'moral' qualities; but even if it should practically become necessary for the authority, or the leader, who has to apportion the jobs, to rely on mere behaviourism by which to judge a candidates qualifications, common sense would regard information about behaviour only as a means to an end, which is the understanding of the man's mental abilities and moral attitude, precisely as is explained by our pragmatic theory. If therefore we may say that common sense does not require the theory, or the technical analysis on which it is based, on the other hand we may say that the attitude of common sense is an immensely important verification of the theory, in a certain number of the problems to which it applies, namely those not dealing with purely money-values; and so important is it that we may fairly say that the *onus probandi* lies with anyone who would maintain that it does not apply to money problems also. If this is agreed to therefore, we only have to show that the theory offers a sufficient explanation of economic problems, not that it is a necessary, or the only, one.

We require however to make it a little more clear just which are the purely economic problems which enter into the administration of a human organism, such as an industrial company, or the government of a nation. The problems we have just been considering dealt only with the selection from among a number of candidates for a job, or the apportioning of a particular job among employees already engaged; the question of power to make men do things did not therefore directly arise, because it went without saying in the former type of problem that any candidate selected would be ready to serve, and in the latter type that any or all of the employees would

undertake the job, if it were allotted to them. The rule is not however without exception, and in the exceptional cases purely economic factors will come in. Even if the conditions of the problems as we laid them down formally exclude bargaining between employer and employed as a legitimate procedure at the stage we are discussing, they hardly exclude breaches of contract, or what one or the other side regards as a breach of contract; and in general questions of breach of contract are either essentially questions of money-value, or they may be adjustable by monetary considerations. This may be taken nearly always to be the case among private persons, unless we try to bring the problem of marriage under the heading we are discussing, and hold to a strict interpretation of the words "for better for worse, for richer for poorer", and of the motives which lead to the making of marriages, as well as to their dissolution. But in government administration the case is rather different. Roughly we might say that bargaining between employer and employed is nearly excluded in a 'covenanted' civil service; it is very nearly excluded in the case of so called 'voluntary' military service, and for practical purposes totally excluded in the case of 'compulsory' military service. In the first case it may be held to be excluded by the 'covenant' entered into on joining; in the second by the terms on which a commission was granted to an officer, or the terms of enlistment of a soldier; but now-a-days, in England at all events, even an enlisted soldier can 'buy his discharge', and an officer or civil servant resign, without any breach of contract, and this puts the cases outside the class of those in which money considerations do not enter. When however a breach of contract does occur, a refusal to obey, or a desertion, the question is regarded in a different light from a similar one in the case of an employee of a private company; it is regarded more or less severely as a rebellion against lawful authority, and as such it might, in theory if not always in practice, be repressed by force; and punished, not by fine, but by imprisonment, or by even severer penalties. Still more clearly is this the case with compulsory military service; the infliction of a fine is not the way the compulsion

is enforced; the man is, if necessary, taken from his home by the police, or by a file of the guard; in handcuffs, if he will not go quietly. Any question of money, or of the calculus of motives, is irrelevant.

Thus, then, one great branch of administration is not amenable to the calculus of motives at all; though common sense seems able to deal with it pretty effectually without any calculus. And this part of administration therefore is little referred to in books on economics, and is even studiously ignored by 'politicians on the make'; since the voters, not understanding it, do not like being told that they will be governed by the men they elect; they prefer to be bamboozled by talk of 'government by the People'. Academic economists also have a natural preference for theories which are amenable to a calculus; none the less so if the reason for its being so amenable is not understood by *οἱ πολλοί*, and perhaps even the more so if this esoteric knowledge is not really possessed by the academic economists themselves. Hence it is that we so often see that curious combination of academic economists and politicians of a certain type, resulting in what is often dyslogistically spoken of as the 'highbrow', the sort of person who fails to catch on to the significance of choice, and the consequent conception of power as at the root of philosophy; and therefore, failing to connect money-value directly with the conception of power, of a particular kind, namely power to make men do things, comes to think that money-power is, or might be made, the sole kind of power, by which the world might be ruled. He thinks he can get rid of war altogether, and ignore the police. By all means let us try to get rid of war; if that can be done without introducing worse evils. And let us all look forward to a day when the police shall have nothing to do except to regulate the traffic; or perhaps when even this will be done by an automatic machine, into whose slot the motorist occasionally inserts a penny. But if we wish to hasten the arrival of the milennium we must get to understand, to have wisdom. We individuals have got to learn how to guide our individual conduct, but we also have to learn how the conduct of the organism which is human society, or at least our little

bit of it, is best to be guided; and we have got to recognize that that guidance is the power to choose, the power to act, and incidentally the power to make individual men do things. Thus, and thus only, does economics come to effect the welfare of mankind.

But it must not for a moment be supposed that I wish to minimize the importance to human welfare of economic problems. On the contrary I believe that it is only because they are so little understood that they have come to be looked at as governed by 'natural' laws, beyond the power of human interference; with the pernicious result that fatalistic fallacies always tend to bring with them; namely that the striving after understanding, and the hope of improvement, have been damped down. It is therefore most important to study also the economic aspects of methods of administration, aspects which may provisionally be summed up in Adam Smith's phrase, as the Division of Labour. And if in the former part of our analysis of administration we found that our theory had been almost entirely anticipated by common sense, and regarded that as a verification of our theory, although it did not convey the 'kick' which a verification of an unexpected result might have had; so now when we find that our theory has not entirely been anticipated in its economic aspects by academic economists, the new verifications of it we get have just that 'kick'. These are mainly concerned however with an aspect of economic organization which Adam Smith's phrase might seem to have been coined to ignore; namely the aspect which might be called the Unification of Labour. According to our theory the two aspects are merely the obverse and reverse of the same medal, so to speak; but this is so only because the exercise of the power to make men do things is by communication between minds, which communication is, *pro tanto*, a bond of union between them, unifying them into an elementary organism; and it is out of such elementary organisms, further unified into the organism (more or less effectively organized) we call human society, is built up; an organism on which Adam Smith's Division of Labour only begins to operate after it has been so unified, more or less effectively. It will

be seen therefore that on our theory the chains, down and up, of command and information, are the primary bond of union, but that secondarily lateral communications are required to unify, into more or less extensive organisms, such as industrial corporations. In such organizations there is no natural horizontal cleavage, into capital and labour; the distinction of employer and employee is a relative one only, the foreman of a gang is an employer, relative to the men of his gang, but he is an employee relative to the overseer as his employer; who again is an employee of the manager; and so on. The pernicious idea of such a cleavage has mainly been spread by the propaganda of Marxian socialism, which academic economics has done little or nothing effective to refute; and I can not help thinking that it would have been refuted long before now, had it been generally and frankly admitted that money consists only of tokens, and what they stand for is power, to make men do things. So far from encouraging the suggestion put about by the cunning propagandist and embodied in the term ' wage-slaves ', this would have dispelled the illusion at once, by showing to the labourers that they were not slaves to their wages, but if they were slaves at all it was to the taboos of property, and the observance of contracts. If Marxian communism does not imply the abolition of these taboos, ' capitalism ' can not be abolished by it; at most all that could happen would be that the state would be the only capitalist, the only payer of wages, the only distributor of labour, or of the products of labour. Whether such an Utopian socialism would work, either well or badly, we need not now dispute; but it would be a wage-slavery in exactly the same sense as ' capitalism ' to-day can be said to be one, so far as the relations between individuals and the State were concerned; only since those wages which the State paid any individual could consist of goods only, which were not to be used to make anybody else do anything, lest the individual receiving them should himself become *pro tanto* a capitalist, the wage-slave would not even out of working hours be a free man. On the other hand if the taboos of property and the observance of contracts were to be abolished, in order to abolish

'wage-slavery', the result would not be communism, the owning of property in common, but a return to 'the good old rule', that is anarchy. It is not necessary even for a moment to suspend the condemnation of such a proposal.

It is however worth while to look more closely into the methods by which 'capitalism' works; we see by our theory they are essentially the same as the administration of political bodies, apart from those aspects of them which in the main are not purely economic in character; namely the ways in which men are selected, or jobs apportioned to them. But in both cases, I may point out once more, good administration involves the providing of each member of the organization with an adequate motive to get him to do his bit. And this whether that motive is an economic one, money, or 'money's worth'; or one of a kind not amenable to the calculus of money-values. If therefore an administrator has to find a man for a job, and finds a man who could do it, if he would, apart from any other inducements he may have to offer, he offers him money. If there are a lot of men any one of whom he thinks could do the job, he may offer little money, on the chance that one or other will take the offer; if there is only one man who could do the job he may have to offer more; and then the maximum he will offer will depend on the importance of the job, which would not get done if that maximum was not adequate to get the one man to do it. Thus the wage he has to pay may depend on 'supply and demand', of men capable of doing the job; but it may also depend on the money value of the job to be done.

These economic questions about the acceptance of wages or salaries are already discussed in text books of economics on much the same lines as they would be in our theory, namely as questions about power to make men do things, if we agree that the money comes into the question only in a secondary manner as a token for, or a measure of, a motive. When moreover, after the contract accepting the job has been completed, and we come to the payment of the wages, we have already seen that our theory throws some new light on the problem of organization, whether by 'capitalism' or by a

state socialism. There is however a third aspect of that problem, which seems to me to be even more brilliantly illuminated by our theory; and that arises out of the question Where is the money to come from, wherewith to pay the wages? As a matter of fact this question is one of a number of questions about the provision of what is called 'capital' for industrial enterprises; and they are questions about which I can speak with no great authority, gained by either study or experience; but as we need not discuss them in any great detail, difficult technical controversies will not arise. The only point we need seriously consider is the common notion that capital consists of accumulated savings. This is at least the picture which the man in the street commonly makes to himself of capital, without any effective attempt being made by academic or even practical economists to undeceive him. The practical economists may perhaps excuse themselves on the ground that this popular notion, though a fallacy, is a useful one; inasmuch as it induces a habit of 'thrift', and moreover checks the miserly habit of keeping money in a 'hoard', instead of sending it to the bank, where it can be made use of. Bankers naturally propagate this view. And they habitually slur over the objection to it, that after the banker has got hold of the savings he does not hoard them himself; the savings do not remain accumulated, until the owner invests them as capital in some industrial or commercial enterprise; but if he wishes later on to do so, he can; in spite of the fact that in the meanwhile the banker has already invested them on his own account. Of course the banker will be able to explain that there always will be in the bank money available for the investment the particular customer wants to make, just as there is always money enough to pay his cheque in cash over the counter. But there never is in the bank, or in its vaults, enough money to pay off all its customers at once, if there actually should be a serious run on it. When other banks come to its aid in such a crisis, it is in the hope of allaying a panic, not in the expectation that they will be able actually to pay off all the current deposits.

So long as we regard money as consisting of current coins of the realm, or treasury notes, these explanations must seem

inadequate if specious; but if we recognize money merely as tokens, standing for power to make men do things, the question takes on a completely different aspect. Now we are asking merely, How do the bankers get this power? and not, How can they accumulate such a lot of money. The answer, though different in detail, is similar in essence to that we found above to the question How did England get the money to finance the Great War. In general terms we may say that the capital for a new enterprise is the power to get that enterprize accomplished; it may in some cases be obtained by the actual accumulation of money tokens in a hoard, which is brought out, bit by bit, to pay wages, to buy raw material, to build and equip factories, and so on. But in modern civilized communities nothing like this happens as a rule. The company promoter issues propaganda, which he calls a prospectus; calculated to arouse confidence in and suggest values to people who have power to make men do things. Certain of them combine together to get the enterprise going; they 'take shares'. Some of these shares may be represented by cash payments 'on allotment'; more cash may be paid up on subsequent calls; enough cash may be called up to pay wages and expenses till the profits begin to come in; but even that is not absolutely necessary. If the 'credit' of the enterprise is sufficient it may be able to borrow from a bank the cash required for current expenses, and if profits accrue the bank overdraft may be repaid, and further working capital provided out of them. So it may be that in a successful enterprise the actual paid up capital may become a very small proportion of its working capital, and a still less proportion of the excess of assets over liabilities, or of the market value of its shares. In this and in many other ways 'credit' functions in place of 'cash'; on the ordinary view of the function of money this may savour of imposture; as indeed it very often is, if the 'credit' is founded on false pretences. But credit, even if it is in this way an imposture, may nevertheless succeed, for a time at all events, in making men do things; for a time at all events it comes, in our theory, under the head of 'money value'. This therefore is a distinct difference of view between

our theory and that of common sense; or, I suspect, of most academic economists, and the difference may be traced to the habit of making to oneself pictures, rather than using working formulas. The picture of capital, as consisting of coin hoarded in one's bank, if not actually in one's own pocket or stocking, has either to be taken 'in a Pickwickian sense', which means in some sense not obvious on the face of it, and not really understood; or it will lead us to confusion, and ultimately to error. And it is not difficult to quote instances where enterprises of great money value have been undertaken and brought to fruition with little or no 'capital', by men who could directly make men do things. From fiction we may quote a character like Captain Kettle, who, by the way, seems to have had the characteristic aptitude for making away with capital as often as he made it, which so often goes with the ability to make men do things. And from history we may quote such cases as Clive, or Rajah Brooke; men who made empires or states, which may be said to have come to possess immense capital; though it might not be possible to estimate it in figures as Mr. Norman Angell tried to do.

But as pragmatists it is not enough for us to show that there is a distinct difference of view between us and certain other people; we have got to show that that difference is not merely verbal or symbolic, in our technical sense, or merely 'metaphysical', as the man in the street might put it. We have got to show that our theory works better than the older one; this can only be found out by trial, by testing its effects on other minds. Let us suppose for example, that the reader had to lead an enterprise, say of an industrial character, would it not help him to realize clearly that it was not solely, or even mainly, necessary to provide a hoard of gold as 'capital'? That he might substitute, in part, or almost entirely in some cases, for that hoard, power of leadership, and, in slang phraseology, his own 'gumption'? And moreover 'gumption' also on the part of the men chosen as subordinates, either as already existing in their minds or as inspired by sympathetic communication? Does it not seem that economists, if what they desire is to 'make things gee', would do well to lay greater

stress on this aspect of the problem, and that it would strengthen the position of their science if its foundations could be re-constructed so as to support that stress?

There are however other details, in the methods by which capitalism works, which are of interest to economists; besides those more directly confronting the administrator, the division and re-unification of labour; important though these latter may be, including as they do such very practical questions as those concerning strikes and lock-outs. For example, there is the detail as to wages or salaries, Whereof shall the money, or other inducement, consist? This is a detail which has sufficient practical importance to have engaged the attention of legislators, when they passed the Truck Act, and to economists it recalls attention once more to the essential question of power to make men do things. That wages, whether in the form of money or money's worth, depend, for their efficacy in getting things done, on the maintenance by the forces of law and order of the principle of private property and the observance of contracts, has already been pointed out; the further exercise of these forces, by the general law of legal tender, was necessary in order to supply an approximately steady unit of money-value. upon which to base a calculus of money-values. In the case of the payment of wages, and in the absence of a special contract, this law would enable any labourer to demand payment of his wages in coin of the realm; and so would secure to him the benefit of such stability of value as the legal money-unit possesses. But it was found that practically employers were cozening labourers out of this benefit, by making contracts with them to accept part of their wages 'in kind'; there being no law regulating the exchange between money and goods; as there is for example between gold and silver coins of the realm, or between treasury notes and sovereigns. Practically therefore the Truck Act worked by invalidating any contract to pay wages in anything but legal tender; an instance again of the exercise of power, albeit this time we might call it a negative power; or the refusal to exercise a positive power, namely the enforcement of a contract.

And outside the questions of the division and re-unification

of labour economists are interested in another aspect of money-values, namely the utility not merely of a catalogue of them, but more particularly of a calculus. This aspect is of direct importance to the administrator or the manager in an industrial concern in respect of the chain of information, rather than that of the chain of command, and it has in recent times received a great deal of attention from economists, under the heading of 'costing'. We have already noted that in the division of labour, the question how large the wages offered should be, is not always determined by supply and demand of labourers; a limit at any rate is put to it by consideration of the money-value of the work to be demanded of the labourer. This leads to the consideration of a general problem of 'prices'; which in point of fact is the problem discussed at greatest length in the ordinary economic text-books. In them however it is as a rule discussed merely as a problem in the exchange of coins for goods, or possibly goods for goods; an exchange of static pictures, like the shuffling of cards in a card-index. The deeper questions about psychological values, and the power to make men do things, are left out of sight. The consequence is that although the economic conclusions of the text-books may apply well enough in the affairs of everyday life, where the popular views of property and money-value receive pragmatic verification, they may break down under extraordinary conditions, and especially under conditions where serious *Machtfragen* come in; since it is just the consideration of power, and particularly power to make men do things, which has been omitted from the premises. I will not refer here to questions of peace or war, lest my arguments should be regarded as tainted at the source by militarism; and moreover equally cogent arguments can be drawn from the sphere of industrialism, into which *Machtfragen* enter everywhere. We have already found that they entered into the question of protecting labourers from occasional bullying by employers under the truck system; even more obviously and on a larger scale do they enter into the great question raised by the late President Roosveldt in the United States, the curbing of the power of the great Trusts, which power was being abused. They enter again, even though

this may not be recognized by all academic economists, into the question of Tariff Reform, which convulsed the electorate of Great Britain a few years ago, and provided politicians with the slogan 'Your bread will cost you more'; to which from the point of view of our theory, the obvious reply might have been 'But, you will be free men'. It is however clear to us, in the calmer atmosphere of to-day, or at least of that within the study, that a full discussion of the *pros* and *cons* of all these economic questions is only rendered possible by a calculus, and not a mere catalogue, of money-values; a calculus which is not only of use in the study, but which more and more is seen to be of use in the business office, and even at the pay-desk. It is only in very small establishments run by a single proprietor, that it is possible to dispense with 'book-keeping'; and in all commercial 'organisms' accountancy, typified in our simplified analysis by the chain of information, assumes an importance nearly as great as administration, typified by the chain of command. It is here chiefly that reasoning of a symbolic type, such as the Theory of Order, becomes of value, and that the mathematical type of mind, as distinguished from that of a natural leader of men, finds its place. It is only when the two aptitudes are combined in one man that the highest examples of human greatness are found. For reasons referred to above I refrain from citing Napoleon; but it is not perhaps so generally known that the younger Pitt was a mathematician. It is recorded of him* that "The work in which he took the greatest delight was Newton's *Principia*. His liking for mathematics, indeed, amounted to a passion, which, in the opinion of his instructors, themselves distinguished mathematicians, required to be checked rather than encouraged". That the 'passion' for mathematics is itself to be explained as setting a value on power, does not minimise the significance of the distinction between the two types of mental aptitude; on the contrary it is only another verification of our explanations, laying stress on a distinction we shall have to discuss later on, between intellectual and material values; for the power exercised by the mathematician may, by the Theory of Order,

* *Encyclopedia Britannica*, Vol. XIV, page 135 b.

be regarded as ultimately analysable into a power of choice between two alternative units of thought, in ' passing in review ' such units in a group; and in a purely symbolic theory such power is not restrained by any material obstacles. That the time spent by mathematicians on such studies is not all wasted, that such studies should not in all cases be checked rather than encouraged, even if it was wise to do so in the case of the younger Pitt, is shown by the utility of the calculus of money-values, even if by no other instance.

VIII

UN-CALCULABLE VALUES

For the title of this chapter I might have used the term 'Values' by itself, taking it in its technical sense as used in our philosophy; or to make sure that it should not be confused with the popular term 'money-values', in which the word values is not used in that technical sense, I might have added the adjective we have already used to emphasize the distinction, 'psychological'. I have however preferred to coin a special word, to emphasize also the significance which in this article attaches to the fact that the values discussed in it are not amenable to the calculus of motives, discussed in article V. It is well also to bear in mind in this connection that these values are emotions which guide conduct, or determine a choice in mind; generally with a view to some ulterior purpose, which, in virtue of the system of explanations of the universe which I have accepted, I believe them to be capable of furthering.

These un-calculable values nevertheless form a group, which may in some sort of fashion be passed in review; we recognize in it some sort of rule of contiguity, for we may think of two values as almost indistinguishable, i.e., as contiguous, for the purpose in hand, and we may also think of two others which quite certainly are not so, even although we might pass in review gradually from one to the other by practically imperceptible steps. We can therefore, in theory at least, conceive a catalogue to be made of the group, and so come to regard it as a 'catalogued' group. But I do not see how we could come to look on it as an 'ordered' group, in the technical sense in which that term is used in the Theory of Order. To use a geometrical analogy to illustrate my meaning, I do not see how the set of boundary groups, or of coordinate axes, determining the catalogue, could be rotated to other situations, so as unambiguously to determine a new catalogue, giving one and only one new name to each value, and retaining the old rule of

contiguity. Still less do I see how we could pass to a metrical or a numerical catalogue; for as already stated I regard these 'values' as un-calculable. But the mere cataloguing of the group is what is commonly called a classification of it, and it is easy to make a rough classification; possibly more than one such classification; although, if we can not order the group, the different classifications will remain independent of, and unrelated to, one another, if, as it is commonly expressed, they are made on different bases.

From the point of view of our pragmatic philosophy the obvious basis to choose is that of ulterior purpose, as those purposes are explained in that philosophy. I might perhaps thus commence my cataloguing by the great dichotomy, separating values whose ulterior purposes were connected with ME only, from those connected, more or less, with NOT-ME. Roughly, in the language of common sense, we may say that this dichotomy corresponds to that between intellectual, and material values. It is not always easy to draw the line; most values which we should at first sight take as instances of purely intellectual ones may, on reflection, be suspected of containing material elements. Even the value to a philosopher of his philosophy, though quite unconnected with love of money, or even of bread and butter, may be suspected of containing an element of love of kudos and praise from his fellow men. And it is not only difficult, but may be thought to be impossible, to find an instance of value wholly without any intellectual element. The nearest example might perhaps be looked for amongst what are called 'carnal appetites', or 'the lusts of the flesh'; but even little Jack Horner, when he satisfied his appetite, or was in the act of doing so, with a plum, said 'What a good boy am I'; that is, the value which determined his conduct included an intellectual element, self-approbation, but it does not appear to have included the rather material element, one of those referring to NOT-ME, 'by taking out a plum I shall avoid getting spanked'. Indeed so difficult does it become to draw the line that, put in this form, I do not quite see what use the distinction between intellectual and material values is to be to us. It is pragmatically far more useful to say that

the purely intellectual values, according to the above distinction, if indeed there be any such, are so few that they may be ignored, or only regarded as exceptions which prove the rule; we may then base our classification of values on some other dichotomy, primarily; even if we afterwards recognize distinctions of degree, between values containing more or less markedly an intellectual element.

Let us try again: and this time we will take into consideration the more common sense purposes of every day life, as the basis of our classification. Suppose we begin with a dichotomy of values separating those whose ulterior purposes are selfish, from those which are un-selfish. The difference between this and the dichotomy we have rejected is that here 'self' is not looked at as purely subjective; I do not look on my 'self' as the same thing as ME, for it includes at least my physical body, as well as my mind; so that my 'selfish' values do not form a class co-extensive with my 'intellectual' values, if we make to ourselves pictures of them; though no doubt my selfish values are some of them intellectual also. But among selfish values, carnal appetites form an important sub-class; including, for example, the kind of love which is deprecated as mere 'lust'. And when we come to consider unselfish values, we can again dichotomise the class on the same basis, into those whose ulterior purposes have regard to other individual minds than one's own, or to organisms we know as built up out of such minds, with which we are ourselves unified; and those values depending on yet wider and more all-embracing purposes, on the ultimate teleology of the Universe. In the first of this pair of sub-classes we have what may be called the higher types of love, the love of family, the love of country, the love of 'all things great or small'; and we have of course also sexual love, except in its purely selfish form; for the ulterior purposes of such love are, primarily the perpetuation of the species, secondarily the unification of the resulting 'family', and only tertiarily, the unification so touchingly described by saying 'they twain are one flesh'. It may unfortunately happen that after marriage the latter bond of union between the spouses becomes loosened, or broken; but after all its purpose is only

tertiary; so long as the first two remain, the third bond of union should be maintained if possible. In this sub-class come also values of the class called 'altruistic', so far at least as they do not come into that of the yet wider purposes. And it must be remembered that the class includes not only 'good', but also 'bad', values; besides love it includes hate, besides benevolence, cruelty; besides desires it includes aversions; antipathies as well as sympathies.

The second of the pair of sub-classes we may have to consider more closely later on. For the present it suffices to draw attention through it to the dependence of this classification on the conception of 'purpose'; in this case on the conception of some ultimate purpose for the Universe. Everybody in every day life accepts the idea of 'purpose' in the values of the other sub-classes, whether selfish or unselfish, as a matter of course; it is only when trying to be scientific that anyone ever attempts to do without it. But there are many philosophers who do try, occasionally, to be scientific; and in the effort to be so think it necessary to become determinists, and so to deny the reality of purpose altogether. If they do that they deny that the universe as a whole is an organism, in the sense in which we use that term here, and there is therefore no object in talking of a purpose for it. Of course the same reasoning applies to subordinate organisms also; for example to nations; and accordingly we find that philosophers who take this kind of view are generally consistent enough to be un-patriotic. But I do not know any of them consistent enough to deny the unification of the cells, nerves, muscles and bones of his own body into an organism, in our sense of the word; or to deny that he himself sometimes entertains purposes; unless it be 'in a Pickwickian sense', a sense which the philosopher must be very hard put to call 'philosophic'. Neither, however, should we be philosophic if we denied the right of such a philosopher to deny that there is any universal purpose in the Universe; and it is quite enough for us to be able to 'get on' with him, if he admits that such a purpose, though not real, may consistently be talked about as an 'imaginary quantity'. And this will apply therefore to the whole of what we have

called the second of the pair of sub-classes, to what common sense regards as the highest class of values, the religious ones.

The classification, or cataloguing, of values, thus sketched in outline, may be compared with that of common sense; and if we do so we shall find remarkable analogies between them. Common sense uses much the same words, 'selfish', and 'unselfish'; but possibly the man in the street would attach less fundamental importance to this first dichotomy, and more to the second, that between, say, humanitarian and religious values, than is indicated in our analysis; and would therefore seem to start away with a trichotomy at once. I think it probable that this sort of view has been suggested to his mind by the metaphysical division of a man into body, mind, or soul, and spirit; a metaphysical division which is by no means confined to christian theology, but, with slight modifications, may be traced in most of the philosophies of the world. In the metaphysics of Theosophy for example it appears plainly, although it is somewhat complicated by further subdivisions, such as those of the body into material body and living body and so on, making the three-fold division into a seven-fold, or a nine-fold one.* It therefore seems to me that this metaphysical division was not merely invented by this or that priesthood, but has its foundations in something deeper. The man in the street may indeed have learned it in the Sunday school, and believe that it has divine authority; without however being precluded from recognizing that many people in the world have got the idea too, without getting it through the Bible. The fact therefore that common sense has got hold of it is, for what it is worth, a verification of the form of pragmatic philosophy we are here discussing; not indeed that it proves that body, mind, and spirit are in any metaphysical sense separate entities, or that it follows from this that the mind, or soul, is immortal; inferences which would merely be due to our making to ourselves pictures. All that is 'verified' is that the classification of values as described above is a practically useful

* See '*Theosophie*', by Rudolph Steiner. Max Altman, Leipzig. On page 19, in the heading to Chap. IV, he gives the three-fold division into '*Leib, Seele, und Geist*'. On page 45 he gives a nine-fold, and on page 48 a seven-fold division.

one. It is not a 'proof' in the old-fashioned sense of the word, which implied the mere 'existence' of a static picture; it is an active formula, which is useful, rather than 'true'.

We may proceed further with the classification both of selfish and unselfish values; but anything like a formal cataloguing of them is rendered very difficult by the ambiguity of our ordinary language, when it comes to questions out of the ordinary run. The same word will be used to denote a selfish value guiding my conduct on one occasion, and an un-selfish one guiding it on another, which resembles the former only superficially. I can see this myself, but how much more serious will such ambiguities be if I am only judging the values which guide another man's conduct, by that conduct. For example, one day I may give a beggar a penny, merely to stop him from bothering me; next day, perhaps, the very same man does not attempt to bother me, but in a moment of pity I give him a penny once more. The third time I pass him I am thinking of something else, but I give him a penny as before, without troubling to analyse my motives. After that perhaps the thing becomes a habit; whenever I pass that corner I instinctively put my hand in my pocket and give the penny, without thinking, and perhaps without remembering afterwards that I did so. I do not know how a behaviourist would distinguish between these cases, or whether he would attempt to do so at all; but in our classification the first would be due to a selfish value in my mind, the second to an unselfish one, the third would be doubtful, and when the action had become a habit I should not attribute it to a value at all. The feeling of being bothered, the emotion of 'worry', is a good example of a selfish value, and also of one which under our former classification would be called an intellectual one. It guides not only my thoughts, but my objective actions also through them, in the direction of laziness; shutting out thoughts of other people, or of any higher ideals. On the other hand the emotion of pity illustrates admirably an un-selfish value, which not only guides my thoughts and actions, but helps to unify me with the person or persons pitied; as is clearly recognized by

common sense in such phrases as 'my heart went out to him'.

It is not my purpose in this article to carry the classification of uncalculable values much farther; rather my purpose has been through this classification to direct attention to the significance of one particular uncalculable value, which we may call the 'love of power'. I hope that our discussion of the classification will at least have resulted in making it quite clear that the 'power to make men do things', which was the basis of our calculus of money-values, was not itself a 'value', in the technical sense of that word, at all. It was not an emotion, guiding conduct. But the exercise of the power to make men do things, by me, very generally if not quite always, arouses in me an emotion of a peculiar character, which as a rule is pleasurable, and which may in some cases appear to be the sole determining factor which guides me to exercise the power. This emotion is a technical value, and an uncalculable one therefore. It is as a rule pleasurable, and so we may adopt the popular name for it, the 'love of power'; but I do not by using this common name wish to exclude cases in which one might say that the love was negative; cases in which the exercise of the power was regarded with aversion. What I want to discuss now is the influence of this value on the conduct of human beings, individually, and collectively in human organisms; comparing it for this purpose with other values to which we commonly attribute great influence; such as hunger and sex; or with less selfish values, such as pity, and the ardour of the chase.

In making the comparison we note that all the other emotions cited might be called 'poignant' emotions; when they are felt they seem to have a pungent force which calls attention to them at once, like the prick of a needle, even though on second thoughts I may dismiss them from my mind. It is this very characteristic which makes it easier for me to build up in my mind 'principles' to regulate them; I repress greediness, and adopt nice table manners; I do not always throw stones at a cat when I see one, for the pleasure of seeing it 'bolt'. In the love of power this characteristic is much less

conspicuous; it took a life-time of experience, and the mind of a great philosopher, to analyse out the cause of Wolsey's fall, and to pen the words—

> "Cromwell, I charge thee, fling away ambition;
> By that sin fell the angels; . . ."

yet I doubt whether the influence of the love of power, on the welfare of human organisms, if not on the lives of individual men, has not been greater even than that of any one of the values we have cited for comparison. For the value, if less poignant, is far more universally present in human minds; the occasions for poignant emotions occur but seldom in ordinary life, but nothing that we do, or even think, but is accompanied by, or is at least a possible occasion for, the emotion of love of power; for it is itself an exercise of power. And introspection reveals, in my case at least, that in this insidious way there are far more of my conations which are more or less influenced by the love of power than I should, without careful analysis, have suspected. Doubtless Wolsey himself only recognized the influence of this value in respect to the major political acts of his life, when he spoke of it as 'ambition'; he does not blame himself for anything he did to Cromwell, as for example he might have done had he climbed into power by kicking Cromwell down; he is not apologising to Cromwell when he says to him—

> "I am a poor fallen man, unworthy now
> To be thy lord and master".

yet he evidently looked upon that power over Cromwell, and that over

> "* * * the noble troops that waited
> Upon my smiles".

as a value which he prized highly. And in the most elementary of our thoughts, even in the simplest mental choice, 'just to see what happens', the love of power to choose, and of the greater power which the experiment may eventually give me, are generally to be recognized by introspection. It seems to me difficult to exaggerate the philosophic significance of such subtle effects of the love of power; at all events so long as it is studiously ignored by a large and influential school in modern philosphy and science.

In the form of pragmatic philosophy which is developing along the line of thought which I hope the reader is following, the consideration of the 'love of power' has yet another significance. It is the first instance we have come across to suggest the significance of the distinction between love and hate, between desire and aversion; and to make it clear that this distinction is as much fundamental to our philosophy as is that of future and past. The conception of power, of MY mental power, as the term is used here, is derived from that of simple choice between two alternatives, one of which it is believed will, in the future, lead to an amelioration of my mental state. Consequently the exercise of power, even in the simplest instances, fundamentally implies not only the existence of two 'values', and the existence of a distinction between past and future; but also that the distinction between past and future is not a mere picture, but a formula, to be interpreted one way only; and so also that values are to be passed in review one way only, in the sense that some of them may be called 'positive' and others 'negative' values; a distinction which the Theory of Order shows may be made in a group which is merely 'catalogued', even if it is not 'ordered'. Thus we habitually look upon any group of 'values' as we do upon the group of moments of time, as a 'one-way street'; the distinctions 'before to after', 'aversion to desire' are real, as opposed to verbal or symbolic; they can not be arbitrarily reversed into 'after to before', 'desire to aversion'. As we shall see later on more clearly, this means that not only are the philosophical conceptions of the time-series and generally of groups of values, 'one-way streets'; but more particularly so is that of the group of ethical values; the distinctions 'worse to better', 'evil to good' are one-way. That common sense holds this view not merely as a principle, or even a habit, but as an intuition, is shown by that feeling of uncanniness aroused in the mind by thinking of the man who is supposed to have said "Evil, be thou my good"; much as it might have been had he said, "Past, be thou my future".

If we have now sufficiently assured ourselves of the reality

and the ubiquity of the value 'love of power', we may go on to consider some of its effects. And first we may note that even so far as we may, on some occasions, regard it as a merely intellectual value, its influence is fundamental. Without it I might indeed desire to ameliorate my mental state, which might lead to my winking my eyelid on the approach of a fly, or to my shutting it when I put my head under water; but it is the love of intellectual power, crudely pictured as a love of Knowledge, which induces me to learn to keep my eyes open when diving, even in salt water. It is the business of pedagogues to teach; and it follows naturally enough, from what they have themselves been taught, and think they 'know', that they should suggest to their pupils that what they want is Knowledge. It would be so much more difficult to teach them Wisdom. Yet what I learn by keeping my eyes open under water is much better called wisdom, than knowledge; I do not learn merely to see a china egg at the bottom, I learn to pick it up; the mere visual picture of the egg is no use, unless I make use of it. This wisdom may be embodied in 'principles' consciously entertained, whether as formulas expressed in words, or as semi-unconscious habits, or even as intuitions, now quite unconscious; like the winking on the approach of a fly; whether we regard such intuitions as examples of inheritance of acquired characters, or not. In all cases however our theory would in accounting for them imply that at some time, and in some degree, the value we here call 'love of power' had more or less influenced the result; even for example if it were maintained that the eye-lid reaction to an approaching fly had been acquired by living animals quite independently of consciousness, in either those living now or in their ancestors, we know that the reaction can be consciously inhibited; and if any man found it useful always to do so, there is little doubt that he could make the inhibition into a permanent habit, just as he can keep his eyes permanently open under water; Only the man 'knows' that this would not always be 'good for him'; knowledge which he would never have acquired without a love of power. For "Knowledge is Power" as every one of Macaulay's schoolboys knows, though very likely some of

them might interpret the formula the wrong way round; even as they do that other formula "Money is Power"; implying by it, as suggested to them by their teachers, that all they had to do was to acquire Knowledge, and they would then possess Power; instead of implying that what they all had to do was to exercise power, as it were to charge up accumulator cells with potential power, which is called Knowledge; which they could afterwards make use of to illuminate a question, as one might switch on an electric lamp. Thus one very important effect of the love of power is what is popularly represented as a love of Knowledge; in this sense we may say therefore that the love of power has been one of the main influences in the evolution of the human race on this planet, and that man should not have been called *homo sapiens*, but rather *homo potens*.

This is however rather a selfish view of the love of power, and it is I believe in its unselfish aspects that its influence is greatest; in respect of the welfare of humanity in general, and possibly of the general purpose of the Universe, rather than in respect of the welfare of one particular individual, say of ME. In particular is this the case with the value attached as love of power to the power to make men do things, the type of power which we have found was approximately amenable to a calculus. We may indeed regard the exercise of this type of power from a purely selfish point of view; on such occasions it would have a purely selfish value; but decent people do not as a rule regard the exercise from a purely selfish point of view, though the sort of man who is called a 'Jack in office' or a '*nouveau riche*' is supposed to do so. More generally the power to make men do things is valued for some particular purpose or purposes which it may be hoped will be accomplished by it; or else without reference to any particular purposes, or thought about purposes at all, it is valued in a rather vague way as enhancing the greatness or importance of a personality, or of an organism of human beings. In extreme cases common sense speaks of the latter kind of value, rather eulogistically, as inspiring awe in other people, or rather dyslogistically, as 'swank'; but the mere fact that common sense speaks, either eulogistically or

the opposite, implies that it recognizes that the exercise of this type of power has a value, whether desirable or the reverse, to the community at large, regarded as an organism of human beings. Nay more, it is generally recognized by common sense that it is desirable for the community that certain persons, or certain organisms within it, should have power; or Authority, as they picture it to themselves. If I try to look at the matter unselfishly, by leaving myself out altogether, it seems perfectly obvious that without Authority of some kind no community could be happy. However much I may attempt to fool myself when designing an Utopia, I can not think Authority away from it altogether; all I can do is to postulate that the Authority is to be a beneficient one, always. But if I frankly recognize this as a formula, and no longer content myself with a static picture of my Utopia, but direct my attention to thinking how my Authority is to become beneficent, or how it is to be prevented from becoming the opposite, I am in fact conceiving some other, and higher, Authority. Indeed I think we may say quite generally that it is only the higher Authorities, those at all events higher than that of ME, that any Utopia-monger ever thinks of abolishing; and if his Utopia is to be anything more than a pure anarchy, what he desires is not an abolition, but a 'change of heart', in higher Authorities; one perhaps which may unify this part of the organism of society more closely with his own self; in mind at all events, even if he does not sub-consciously desire that the Authority should be his own. That is why it seems to me that Mr. H. G. Wells, in describing one of his many Utopias, hit the right nail on the head; though on reading the entertaining book I did not feel sure how far he himself realized the point we are now discussing, consciously. In this book the Utopia was brought about by a bombardment of gas shells, from Mars, or somewhere; the effect of the gas, after a period of a sort of hypnotic trance, was to make everybody thence forward a good boy, or girl. After that, it would seem, no Authority was required, because everybody automatically did the right thing; or if he did anything because he was told to, he did it without any hesitation or 'back chat'. If the book was written in irony, as a skit on Utopias in general, there

is much to commend it; but even if it was not so intended, we may profitably so apply it ourselves.

But without Utopia-mongering we may very usefully apply ourselves to studying how Authorities have in history come to wax or wane, in respect of beneficence. And roughly we may distinguish two methods; the one illustrates directly the method of trial and error, or the survival of the fittest; the other the more subtle method of education, by the sympathetic communication of values. As an example of the former method, though not a very successful one, we might take the selection of Emperors for ancient Rome. There were few successful trials; and the unsuccessful ones were as soon as possible put an end to by assassination. Modern democracy tries a similar method for selecting its government; but it is hampered by 'the machine', which as a rule offers it only two alternatives for selection; a praiseworthy effort is being made by some thinkers to get rid, more or less completely, of 'the machine', and offer a wider choice to the voters, by 'Proportional Representation'; the objection raised by other thinkers, to this effort, and it is a very weighty objection if the premises on which it is based are founded in fact, is that the giving of a wider choice would result in a weakening of Authority in the State. Which view is to be preferred I do not discuss here; but I may here point out that both views involve *Machtfragen*, as of the essence of the question. And I think that the view is gaining ground amomg thinking men that the method of trial and error has not after all played any great role in increasing the benificence of Authorities in the world; certainly the occasions on which it has been beneficially exercised through representative forms of government are few, and far between. On the other hand the influence of the sympathetic communication of ideas, through education generally, and not particularly through compulsory education in elementary schools, has been enormous. No doubt the wider spread of education, through government compulsion, has also helped to bind together the organism we call society in its widest sense; it has included in it practically everybody; except the 'criminal classes', if indeed they can be clearly distinguished; it no longer excludes

'serfs and villeins'. Whether it has strengthened Authority in the State may be a moot question; we can however say that it has tended to put it on rather a different basis, the basis of society as an organism, rather than the individual powers of one mind, or of only a few minds. It has resulted in the formation of a more definite public opinion, and has given to this public opinion, which it would be better in our theory to call the opinion of the organism, or of society, a power of its own, which in fact does more to control the aberrations of Authority than does any process of election, or sorting out of rulers by selection. It does so even if it is tempered by dismissal from office; since the persons so dismissed have a way of hanging about on the chance that the next swing of the pendulum may be in their favour; a chance which often turns up, more often indeed than the trying of new blood. Whereas we find that even professed extremists, with an extreme 'mandate', are cooled down by a sense of responsibility, and a fear of public opinion, so that in office they are not nearly so terrible as they painted themselves in opposition. Only, the education which effects this growth of public opinion is not the mere teaching to read and write, still less the teaching of more advanced branches of knowledge, merely as such. The reading and writing may be useful in facilitating communications of values in after life; in the process of teaching higher branches of knowledge, as well as in teaching reading and writing, values are incidentally communicated to the children. But it is the communication of these values which is the main thing; and it depends mainly on what these values are, whether the education is subsequently going to aid the organization of society, by the maintenance of its principles, or not; and whether the public opinion generated in the organism resulting, is going to influence the Authorities in the State in the direction of benificence, or the contrary.

The importance of this sort of communication of values, especially to the young, rather than the mere communication to them of ideas, or 'knowledge', is of course insisted on frequently enough; and for reasons very similar in essence to those given by our pragmatic theory. It is also commonly

recognized that values so communicated to the young, and what we here call 'principles' founded upon them, more readily become habits, which are followed without mental effort, than if they are acquired later in life. We say commonly that the formation of character is of greater importance than the mere acquisition of knowledge, and that even though we may continue to acquire knowlege all through our lives, character is mainly formed in the nursery, or at school. If the child has a good home, and happy family life, that part of the character formed in the home is even more valuable, and more permanent, than that formed under a schoolmaster; and this is why all wise statesmen have attached even more importance to laws and customs regulating family life, than to education bills. Unfortunately all statesmen are not equally wise, and many politicians get into power who have no claim to be called statesmen at all. In respect of the laws about divorce in particular, there is a deplorable lack of understanding, even if there is no conscious pandering to moral laxity, out of fear of offending voters. The childern have no votes; and one would suppose, from reading popular literature on the subject, that not only had they no interest in the question for themselves, but that their interests were of no importance to the State. Whereas the first consideration, from the point of view of the State, and therefore also of the statesman, should be so to regulate marriage laws and divorce laws as best to secure happy and well brought up families of children, to provide units for the organism of the society, in its next generation, imbued with the highest values, and the most beneficent moral principles. It certainly does not further this end to allow almost promiscuous divorces and re-marriages among divorced persons.

That the selfish and inordinate love of power has been a fruitful cause of wars is a commonplace that almost might go without saying, were it not for two considerations which our theory brings out very clearly. The first is that if an aggression is due to an inordinate love of power, the successful organization of a defence is hardly possible except under leaders in whom the love of power is a conspicuous characteristic. We have

only to think of the leaders who organized the British Empire during the great war to find examples. The second consideration is suggested to the mind by two almost opposite lines of argument, both of which however might seem to deprecate the importance of the love of power in human affairs. The first is that of a school of historical thinkers who magnify, even if they do not exaggerate, the significance of economic factors in causing wars, a line of thought which, be it observed, is very different from that of Mr. Norman Angell and the Manchester school of politicians; who adopt the second line of argument, namely that economic factors are capable of putting a stop to war altogether; that the lion can be induced to lie down with the lamb by the beneficent operation of the unfettered law of supply and demand. With the former school of thought our theory is in substantial agreement; only it recognizes, and perhaps emphasizes more clearly, that to attribute a war to economic factors is not to withdraw it from the class of wars mainly due to love of power; even though in this case we might call that love of power 'inordinate'. For economic factors are just those concerned with the power to make men do things, in its most efficiently ordered form; and we have seen that in commercial organization, especially in its more complex developments, the love of that kind of power for its own sake, apart fron any appreciation of the things done by it, is a factor of the greatest importance. The historical study of the operations of the Hansa league in old times, and of, say, the Standard Oil trust in modern ones, show this plainly. If our theory is not in full agreement with the Manchester school of political thought, it is because that school seems to ignore our contention, that the law of supply and demand is itself based on force, namely that exercised by the police. It is true that in a law abiding community like that in Manchester the overt exercise of force by the police can always be kept out of sight, or regarded as an exception which proves the rule; but people who live in Manchester all their lives do not perhaps recognize that there are places on the earth where "there ain't no ten commandments"; and, not having themselves been to such places, they may not recognize how much of their

own morality is due to the fact that "there is perlice about". Neither, perhaps, do they recognize, as do the thinkers of the historical school, that the boasted law of supply and demand itself may lead to wars, especially if it is only controlled by the negative principle of *laissez faire*. They do not understand what von Clausewitz taught, that war is only a continuation of policy through other means; that is to say, that when the police are insufficient to quell a riot, the military must be called in; if an organized military force is opposed to the policy of the state, it has to be met by organized military force; and that is war. The alternative might be contemplated of submitting to the policy of the other organized military force, perhaps; but if that would imply the abandonment of your policy of *laissez faire*, what then? Or, still worse, if it implied the cessation of the protection of private property? It is only by burying one's head in the sand that such possibilities can be ignored; in the fatuous way in which the possibility of a great war was ignored, up to the latter half of 1914.

So far I have been considering the love of power only in its individual aspect, even though its consequences affect the welfare of the whole community. But there is another aspect of it which is not exactly individual, but shows itself rather as a mass-emotion, as a value to an organism of human beings, rather than to a single man. This emotion is what is commonly understood by 'loyalty'; it may be said to be the affective side of *esprit de corps*, even though we commonly, and perhaps most frequently, apply it to loyalty to an individual only. But even if, when I talk of loyalty to the King, I think of him as an individual man, and not as His Majesty, the embodiment of my loyalty to the State, my emotiom of loyalty to his person seems to bind me to him, and so in some degree to unify my personality with his, in an *esprit de corps*. But we do also talk of loyalty apart from personal loyalties, and such talk is not merely metaphorical. Even if I had no king, I should feel loyalty to my country; I feel loyalty to my old school; loyalty to my family. And, most notably, in any well organized business the employees feel loyalty to the business, even if not personally to the manager or foreman above them. And

they know that that feeling of loyalty is shared by their comrades, it is an emotion which belongs to all of them together, as what we here call an organism; in exactly the same sense as my egotism, or self-love, belongs to the organism of living cells and ganglia which I call myself; and in both cases the emotion is rooted in the love of power, in the thought 'I did it', or of 'We did it, together'.

Loyalty is thus one of the un-selfish values, and it is to a person, or to a human organism, even if only to the organism consisting of myself and the person to whom I feel loyal; it comes into the first of the sub-classes into which the un-selfish values were divided. But loyalty may also be felt towards higher ideals, towards the whole universe, regarded as an organism; or, personified, either as an organism of deities, or as a single God. The consideration of this form of loyalty, and also of the ethical or religious values in general, must be deferred to another article; but with respect to the one-way distinction between positive and negative values which obtains among them I must add a word here, in so far at least as this distinction applies also to selfish values.

I have already pointed out that the one-way-ness, if I may so call it, of the distinctions 'past to future', and 'aversion to desire', when we pass them in review, is quite fundamental to our theory. That does not mean that it is 'true, *a priori*'; but it does mean that it is not merely verbal, not implied by a symbolic theory, like that of Order, on the basis of arbitrary definitions of technical terms. This indeed, at least so far as the temporal distinction is concerned, is one thing that is new in the Theory of Order, compared with previous theories of the foundations of geometry and of mathematics generally. Both these one-way distinctions however are essential to the fundamental Explanations by which we seek to give real import to the symbolic theory; they are therefore not verbal, but real distinctions; in the same sense in which I call the distinction between ME and NOT-ME a real one; or in which a man of science calls a law of nature real, and not merely verbal. And it is not merely the distinctions regarded as pictures which are thus real, it is the one-way-ness of them, the sense in which we pass the elements of the picture

in review, as a formula, which is of real importance. I do not merely distinguish between a desire and an aversion; I *prefer* the former; and our explanation of the universe would break down from the very foundation if it did not include this conception of preference, for without it no emotion could act as a guide for choice. From the very beginning therefore our theory implies, not indeed a hedonistic calculus, but what might be called a hedonistic catalogueing, of values. I am not altogether without apprehension lest this statement may be regarded by some people as an admission, on which depreciations of the theory might be founded, even to the invoking of the *odium theologicum*. But the risk must be run; and any unbiassed person who cares to read on will see that, so far from running counter to morality or religion, the theory offers support to the common sense views of morality and natural religion as strong, if not stronger, than has ever been offered before. And even if the one-way-ness of the distinction between aversion and desire applied only to merely selfish values, the recognition of it as fundamental to philosophy would, I believe, constitute an immense step in advance for philosophy; only it is not impossible that as soon as it is perceived that this recognition means pragmatism, the forces of orthodoxy will be arrayed against it.

IX

SOCIAL AND UNIVERSAL VALUES

One of the greatest problems of philosophy, if not the very greatest, has always been the problem of Good and Evil; or rather we might perhaps put it as the problem of the relation of Knowledge, to Good and Evil. And, as usual, we find that this problem has been befogged, rather than elucidated, by our making to ourselves pictures; as indicated in the above statement by the use of capital letters. It at once becomes more tractable if we express it in terms of formulas; say as the enquiry, how wisdom can lead on to virtue. But even so it has always been a battle ground for philosophers and theologians; the problem has never been satisfactorily solved by common sense pragmatism, though perhaps only because common sense has been led astray by the entanglements of Platonic Idealism, and of various theologies. Consider, for example, the sort of view of the problem implied in the lines—

> "Wise men, flattering, may deceive you;
> With their vain mysterious ways.
> * * * *
> But true wisdom can relieve you;
> God-like wisdom, from above,
> * * * * "*

The idea conveyed is not that the men who (according to me) deceive you, are stupid, or powerless; it is not that their magic is feeble or futile; it is only that they are bad men, and that their magic is black. On the other hand the other wisdom (of which I am the exponent) is the true wisdom, which indeed is likely to be more powerful than black magic, but which, even if it can not reverse the black magic altogether, will relieve you from some of its effects. And the lines further imply that the white magic comes 'from above', and is God-like. In

* I quote, by memory only, from the libretto of one of Handel's oratorios; for our purpose it is not necessary that the words should have any kind of authority behind them; though presumably they were adapted from some passage in the Bible, probably from one of the prophetic books.

the mouth of a theistic writer this doubtless implies Divine inspiration, such as is claimed by prophets; but a very similar implication might be made by a platonic idealist who claimed that his philosophy was founded on axioms, '*a priori*'. Generally therefore we may say that the lines imply certain independence of virtue from wisdom; the latter of which, without ceasing to be wisdom, may be either good or bad; although, to maintain appearances, the adjective 'true' is used (by me) only for the sort of wisdom I call good; and it is only rather cynical people who would call miracles, like the swan-trick of that gay deceiver Lohengrin, magic; if I conceded that term for it at all, I should insist on adding the adjective 'white'. The general emergence of common-sense pragmatism from these entanglements during the past few centuries is admirably described by Lecky in his book on the Rise of Rationalism in Europe; only perhaps I myself should have preferred to entitle it the Development of Pragmatism, without attempting to confine the subject to Europe, since the main development of Pragmatism of late years came from William James, in America.

But William James himself failed, in his great book on Psychology at all events, to carry the development very far. He himself says "An adequate treatment of the way in which we come by our aesthetic and moral judgmnets would require a separate chapter, which I can not conveniently include in this book. Suffice it that these judgments express inner harmonies and discords between objects of thought; . . ." *; and this implies that, if he ever did carry the development any farther, he probably proceeded on a different line of thought from that presented here. He did not look for our aesthetic and moral judgments as a direct development of the wisdom already embodied in what we call our knowledge of the external world, in which we live. He did not realize how it might be possible in this way to bridge the gulf between wisdom and virtue, and to account rationally for good and evil. Still less therefore, however optimistic he might be, could he look forward to a time when it might become possible to bridge the gulf between

* William James, "*Principles of Psychology*", Macmillan 1891, Vol. II. page 675.

rationalism (that is pragmatism), and theology, or idealistic philosophy; to the time when theologians and philosophers might lie down together, in a common realization that the one-way-ness of their dogmas about good and evil, as well as of those about beautiful and ugly, were based on facts of the same kind as the fact that I knew my mother. Under the circumstances therefore it is not surprising to find that common sense is a bit confused about the classification of judgments, and the values on which they are based; and in particular as to how intellectual judgments are related to moral judgments, or as to the discrimination of the corresponding values. Although common sense readily admits a vague dichotomy into selfish and un-selfish values, and again dichotimises, vaguely perhaps, un-selfish values into social and universal ones, according as the ulterior purpose regards only myself, only human society, or the inclusive organism conceived as an unification of all consciousness, which may be more particularized and personified as God; yet after making the admission it still craves for 'proof'; and that in a sense in which it does not crave for any proof from physical science. If common sense only came to realize that the 'proof' demanded is not only of the same kind as, but is even logically prior to, that required for the axioms of science, it may be that the craving would be stilled.

According to the system of pragmatic Explanations adopted by common sense almost instinctively, and which we are here seeking to analyse and develop, there appear then to be two important factors in the further development. The one is the recognition of the significance of the one-way-nesses of time-series, and of series of values as determining choices; and the other is the attaching of a real, and not merely metaphorical, significance to the conception of the unification of minds, or of elements of consciousness, into organisms. As to the former, common sense is of course aware, in some unanalysed kind of formula, of the one-way-ness; it is only because of its extreme familiarity with the conception that common sense allows it to go without saying. So great is this familiarity that it seems almost to have bred contempt, even in the minds

of philosophers striving to explain our Universe; they do not even trouble to lay it down as an *a priori* axiom. They do not perceive the significance of it, for example, in relation to the Theory of Order. In the first place, no doubt, this is because they do not clearly distinguish between real and symbolic propositions, and so do not recognize that the one-way-ness of time- and value-series is not symbolic, but real; the one-way-ness is not laid down as an arbitrary definition, nor is it deducible from the other arbitrary definitions, either of the Theory of Order, or of other theories of the foundation of geometry; for it appears in the very act of 'passing in review', in philosophic time; a real subjective operation; and if it appears also in the theory of geometry, it appears in a derivative manner only, deduced from its real appearance when passing in review. And we find accordingly that the ignoring of this significant fact leads to what is generally recognized as a paradox, even if it is not formally put down as an 'antinomy'. Moreover, not only is it a paradox, but it is one which arouses just that emotion of uncanniness which indicates that we have to do with an instinctive idea; one which if it was reached by anything like formal reasoning, and not by mere trial and error, must have been so reached very many generations ago, so that it is now part of the instinctive equipment of every human mind. The apparent paradox may be suggested by saying that it is impossible by any intrinsic measurements to distinguish between a right-hand and a left-hand shoe; yet if you madly try to jam a right-hand foot into the latter, it will hurt. Euclid ignores the point completely; he is enabled to do so without comment only because he is able to evade the super-position of tetrahedra, in the way he superposes triangles; by making use of an infinitesimal calculus for their mensuration. In the case of triangles, that is plane triangles, it is possible to jam a right-hand one, cut out of paper, into the hole from which a left-hand one, with respectively equal sides, has been cut; provided we are not confined to moving it about in the one plane. In the Theory of Order there are other features, also pointed out, which show the essentially egotistic character of our space conception, and therefore show that it is real, and not purely

symbolic, as the Theory of Order in gemeral is; for a theory of the foundations of geometry alone there is therefore no strong objection to basing it admittedly on a one-way series, such as that of the philosophic time occupied in passing in review; only if the foundations of geometry are to be satisfactorily analysed, the reality of the one-way-ness ought to be admitted explicitly.

The other important factor in the development of our pragmatic philosophy, is the real significance which it attaches to the unification of conscious beings into organisms. We may note at once that there are two possible directions in which verifications for this thesis may be sought. I naturally, and inevitably, start by postulating the unity of my own consciousness; but from it I may start either in the direction of analysis, or in that of synthesis. If I take the former course to begin with, it necessarily involves a subsequent synthesis of the elementary parts, into which my analysis has subdivided my consciousness. Similarly if I take the latter course first, it necessarily involves a subsequent analysis by which I may distinguish individual men from one another. So that logically the same principles are involved, and the same formal explanations are verified, or otherwise, in either case. But the pragmatic considerations involved are very different, and the criticisms of the arguments adduced will come from very different sources. If I start in the direction of analysis I am concerned with psychological and physiological considerations, and the criticisms will come from scientists; if I start in the other direction, the scientists will probably stand aloof, but the criticisms will come from philosophers and theologians. But of course I am not out here for a controversy with either party; at most I only hope, impartially, to marshall the protagonists in the lists, and to make clear the issues to be debated by them.

First then, as to the analysis of a single human mind. Only a very few years ago the very idea of such a thing would have been scouted, either in the ranks of scientists, of philosophers, or of theologians; but some day no doubt men like Mesmer, Charcot, Morton Prince, will be recognized as pioneers in

science, as much as were Jenner or Lister. And among psychologists, and even modern physiologists, there are not wanting men, like Prof. Wm. McDougall, who not only realize, but have the courage to admit, the fundamental nature of the conception of conation and choice, in relation to the problem of Body and Mind.* To him I may refer for examples of verifications of an animistic theory which, so far at least as concerns the point we have under discussion at the moment, seems to be identical with our own. But many, if not most, modern psychologists and physiologists, even without taking up a definitely animistic position, or even if they profess themselves behaviourists only, recognize as facts occurrences which would count as verifications of our theory, and few or none which might not be explained in accordance with it. As regards the supposed 'facts' of dichotomies of the nervous system, and of the functions of the mind, as connected with different parts of the brain, and even with lower ganglia, the physiological or purely behaviourist observations clearly serve also as verifications of a theory of subjective analysis. It is only when we come to a re-synthesis that we do not as yet find the same amount of agreement; but even here we do not find definite opposition, or observations cited which are incompatible with a subjective analysis. All that commonly happens is that the question is ignored, or put aside for discussion at some future date, which has hardly arrived yet. As to the main point, that anyone who admits the analysis, such as the possible division of consciousness in Sally B, or even that more actively insisted on, of an 'unconscious', distinct from a conscious self; or that of behaviouristic reactions of a frog whose brain has been removed; from the animistic standpoint, *ipso facto* admits also that elementary consciousnesses, or elementary minds if that term is preferred, can be synthesised again into organisms, which may also be called unitary minds. And moreover incidentally he admits verifications not merely of the fact that organisms in this sense 'exist', but of the way in which our theory analyses the process of organization, as a formula, and not a mere picture.

* *Body and Mind* by Wm. McDougall; Methuen; 1911.

And before saying anything more particular about the synthesis of human minds into organisms, social or universal, let me call attention once more to the fact that the acceptance of the analysis of the individual human mind just described, as verified, *ipso facto* involves also the acceptance, as verified to a similar degree, of some sort of synthesis of individual human minds, into some sorts of organized bodies, even if only into pairs; for the verifications supplied by psychology and physiology all depend on the possibility of communication between minds. Nobody has ever observed the reactions of his own lower ganglia, by cutting off his own brain.

If up till very recent years the development of the analysis of the human mind has been hampered by orthodox science, so also have orthodox philosophy and theology up till quite recently hampered the advance of the conception of human syntheses. Occasionally, with bated breath, you hear some rash or irresponsible person talking about 'mass psychology'; if he is a sufficiently great personality you excuse him, by taking his words as parables; like the way you take the accounts of the Creation in Genisis. On accasion also many theologies, and especially the Christian religion, insist strongly on such phrases as 'the communion of saints', and even more, the communion with God. But I hope the man in the street will pardon me if I surmise that he too generally takes such words only as parables; to be repeated in Church, but to be accepted only *cum grano*, by common sense. I do not wish to imply that there are not very men and women who faithfully believe in such communions, and try their best to let their every day actions be guided by the emotions which such beliefs call up; I am only suggesting that, too often, they have to *try*; and that therefore even when they succeed, the controlling emotion has not been that of the communion itself, but rather that of a wish to belong to it. In such cases the communion has not been actually realized, though its advantages as a picture may have been perceived. The picture which they make to themselves of it seems not quite real, but only metaphorical; while the formula admitting its advantages, they have been taught to discount, as mere pragmatism. But to us the fact that the picture

may be called only metaphorical is, *per se*, no objection at all; for in the same sense all the pictures we make to ourselves of the objects with which physical science deals, are equally metaphorical; if not more so, as not only most religions but many philosophies would tell you. And to us the discounting of pragmatism, as such, is a mere begging of the question. If a belief in the communion of minds helps me, individually, to attain the selfish values I prefer, that is a pragmatic justification to me, individually, for accepting it as a principle. If further that belief helps the community, as an organism, to attain the values preferred by that organism, that is a pragmatic justification to the community, as an organism, for accepting it also as a principle; just as the community of bees in a hive accepts a common obligation to make honey. Of course if a community of bees were to cease to prefer honey, but came to prefer, say, a mixture of rum and sugar, its continued existence as an organism might no longer be justified; the bees might turn quarrelsome in their cups, and the hive might break up; the same thing has occurred before now in a communion of saints, or perhaps we ought to say a communion, originally of saints. And on the other hand if the community for even a short time continues to prefer certain values, those values will become embodied in principles which eventually will become habits; or in the course of generations perhaps, instincts; formulas which will appear to be true '*a priori*'. Thus it will come about that among selfish values those will come to be embodied in principles where the ulterior results of those principles are preferable values for the individual; among the unselfish values similarly, those embodied in principles which result in values preferable to the community. But, inasmuch as the survival of the individual, even if not his immediate happiness as a member of the community, is in general bound up in the survival of the community, as is that of a bee with its hive, it will follow, by the survival of the fittest, if by no other and more expeditious principle, that in the long run the principles of the community will become impressed also upon individuals; in other words that unselfish values will become instinctive with individuals; as well as

with human organisms composed of two or more individuals, in whose interest they would appear to have been framed; just as the making of honey has become instinctive with bees.

This line of explanation takes us on towards our goal; but as yet we have not quite got there; and in particular we do not seem to have reached any new verifications of our theory. Indeed common sense might even doubt whether we had come to anything new at all; for common sense, as we have recognized all along, is a pragmatism fundamentally very much like ours, so that it would not be surprising if it had reached much the same conclusions. This doubt however is a reflex effect of the habit of mentally constructing pictures, which one has not quite got the courage to accept as facts, and which therefore one accepts in a half-hearted sort of way as metaphors, or parables. Not, be it observed, that we, as pragmatists, would wish to insist on the necessity of definitely pledging one's self either to the acceptance or rejection of such pictures; quite the contrary, what we would criticize would only be the shame-faced way in which the hesitation is commonly expressed. As pragmatists we should decline altogether to pledge ourselves to the acceptance of pictures as facts; we should at most accept them tentatively as Explanations, i.e., as formulas to be interpreted, and eventually, as we may hope, to be verified, more or less satisfactorily. In the particular case before us common sense has actually reached conclusions very like those reached in the theory here presented; but it proceeds to discount them, in deference perhaps to Science on the one hand, and Theology on the other, as mere metaphors, which may be dropped, rather than hurt anyone's feelings; like the politics of the politician, " Them's my sentiments, but if you don't like them, they can be altered ". Thus an appeal is made to the very courage of common sense in order to prevent it from having the courage to admit its pragmatism openly. But common sense, having once admitted that talk about mass-psychology, an ' organismic viewpoint ',* or the unification of a number of human minds into an organism, is mere metaphor, mere rhetorical exuberance, no longer takes such phrases as formulas, and so gives up trying to verify them,

or otherwise, by trial and error. It remains content to abide by both the orthodox scientific and the orthodox theological views, in spite of their being diametrically opposed to one another. On Sunday the man of common sense listens to a sermon on the Unity of Christ's Church, as His Bride, and on Monday to an anti-spiritualist lecture by a determinist man of science, with exactly the same fatuous complacency. So long as 'common sense' retains this lethargic attitude we shall not get any nearer to our goal, and we can not be surprised if we get no new verifications of the theory we have, with pragmatic tentativeness, put forward. And we must not be surprised if we find that common sense overlooks the significance of verifications which have, so to speak, come to us of their own accord; any more than we must be surprised if we are met by opposition from either Science, of Theology, or both, should we attempt any experimental verifications.

From our point of view, though we are not prepared to go to the stake for it, we have only to look about us to recognize numberless verifications, though there is no 'crucial test'. Many such are admirably summarised in a work by an able psychologist of the most modern type, Dr. Burrow,* on reading which one feels admiration not so much for the novelty of his ideas, as for his courage in expressing them; only a few years ago it would have been sufficient to meet such a book with a 'smile of slow disparagement'; in scientific circles at least; for it is from the scientific side that objections will come to the explanation by unification of minds into organisms; theology is already too deeply pledged to it, in one form or another, to raise objections except on points of detail. And it is therefore natural that we should try to hasten the verification, or otherwise, of out theory by experiment; the method upon which Science prides itself, in addition to verifications with which history may have casually provided us. And such experimental verifications will generally take the form of verifications of subsidiary explanations, added after the acceptance of the main

* See *The Social Basis of Consciousness*; (Kegan Paul; 1927) in which the author, Dr. Trigant Burrow, comes to very much the same conclusions as we do here, though he reaches them by a different line of thought.

one, as to the possibility of the unification of minds into organisms; in so far as such experimental verifications give positive results, they will serve secondarily to verify also the main explanation. But if in any case the subsidiary explanation should not be verified, or if its verification was not accepted by everybody, that would not necessarily weaken the main explanation, which might receive verification from other sources. The method of trial and error is not upset by the discovery of one error, or even of many of them; on the contrary, if there were no errors the method would not work at all.

The drift of the above observations will perhaps become more apparent if we consider a rather different kind of objection which common sense might perhaps feel, even without being able to express it clearly. Common sense is being asked to regard organisms consisting of two, or more generally of many, human individuals, as analogous to the mind of a single individual man. But common sense has always regarded an individual mind, or it would be better perhaps to put it that the man in the street has always regarded his own mind, as the very quitessence of a unity, one and indivisible. Consequently if he talks about organisms composed of several human beings, he conceives it as having several minds, and looks on talk about 'public opinion' deciding any question, as un-real. This objection can not be dismissed with an airy wave of the hand; it has to be taken seriously. Our explanation of the unification of minds into organisms actually does assert an analogy, or more than that, an identity principle, between the individual human mind and the collective mind of a human organism; but the objection is to be met by attacking the other way round; it is common sense which makes a mistake in explaning the human mind, or, it would be better to put it, that the man in the street makes a mistake in explaining his own mind, as being one, and indivisible. Modern psychologists have abandoned this mistake, on other grounds; and in accepting their explanations about 'the unconscious', about 'dual personalities', about intelligent reactions of pithed frogs, and so on, we *ipso facto* remove the objection that a human organism, containing two or more minds, must necessarily

have only one persistent will of its own. If this is not necessary for the mind of a single man, it is not necessary in order that a body of men should be regarded as a single organism. It has indeed been pointed out already, when discussing organization, that it is very generally of advantage to have a single directing mind for a human organism; that was not however quite the same point. What was then urged might now be expressed by saying that the easiest practical way of securing an effectively unified consciousness for a human organism, was to concentrate the supreme power in the mind of one individual man; but our point now is that perhaps the same end might be attained without any one man being specially singled out, if the organization itself were perfected. It might be attained by a more complete sympathetic communion between the different men's minds in the complex organism; by the development of a more effective 'public spirit', taking that term in a more literal sense than is commonly done; by the development of a more real communion between men. If that is so we must compare most of the human organisms with which we are acquainted with Sally B's, and not with such a perfectly unified and indivisible entity as I have hitherto claimed my own mind to be. We must recognize the imperfection of all human organisms; we may regard them as in course of evolution; only they have not to-day attained anything like the perfection of organization which has been attained by the *homo potens*, in the evolution of species on this earth. If at some future date any human organism should attain a comparable perfection of organization, the behaviourist would have just as much, or just as little, ground for attributing a conscious mind to it, as he has to-day in the case of any other man than himself. He would have just the same sort of reasons, whether he regarded them as adequate or not, for attributing purpose to such a human organism; and for recognizing that the purposes of the organism were being fulfilled in part by him himself; as a member of it, 'doing his bit', even though perhaps he himself was not aware of the source of the guidance. Just the same sort of reasons which he would have for attributing some elementary form of consciousness to the cells and gang-

lions in his own body; which were doing their bits for him, were fulfilling in part purposes of his; of which, as such, they were not themselves fully aware. If, for a moment, I might put myself in the place of one of the cells of my own body, and suppose that its elementary consciousness had somehow been enabled to work out an explanation of the universe similar to that I am putting forward here, the cell might, from its own experience, have no knowledge of any but my own perfectly organized and unified human mind; but if it had access also to the experience of its ancestors, it would know of cases like that of Sally B, on a large scale, and no doubt of cases of local defects of organization on smaller scales; closely analogous to defects in organisms of human beings, with which I am acquainted to-day. Or one of the remote ancestors of one of my to-day's cells, existing before such a perfectly evolved human being as I take myself to be, had been arrived at, might have seen about itself only organizations so imperfect that it hesitated to credit them with unitary minds at all; any more than we should attribute a public spirit to a congeries of Kilkenny cats. We conclude therefore that this particular objection of common sense, founded on the supposed unity of a single human mind, breaks down; at most it only serves to indicate the imperfections of organisms of human beings under the present conditions of human society.

Indirectly however it is significant in another way also, namely in directing attention to the question a cell in my body might ask itself, "If I am only a small element in the great body of this man, in which I am doing my bit for purposes not my own, but his, what are those purposes, and why?" It is the old question about the clock, and the clockmaker; in a slightly different form. Only I do not think the old answers, especially those hinting at an 'infinite regress', are of any use. There is no sense, from the point of views of pragmatism, in talking of the necessity for infinite regresses; talk about them by all means, if you like, or as long as you like; but if you come to no useful conclusion, do not talk about any necessity for them, or blame the waste of time on any 'antinomy'. In the case of the question asked by the cell, so long as it has any

hope of obtaining any useful answer, by all means let it ask, and go on asking. Only I doubt whether it ever will get an useful answer, if the cell is looking at my purposes merely as pictures, and not as formulas to be interpreted. In the former sense the cell might label my purposes as good, or bad, in its own estimation; probably the latter if, for example, my purpose was to have that particular cell, included in my appendix, say, cut off and cast from me; yet it might be good from my point of view, from the point of view of my body as a whole. And, if it is reasonable to attribute to the cell such knowledge and such freedom of will, it might be still more for the good of the whole body, and therefore of ME, that the cell should get to know the reason for my purpose in having my appendix removed; at all events it might be useful that the cells which remained should get to know of it. We can even carry our fantasy a step further, and say that it might be for the benefit of my whole body, and so of ME, to set up schools of instruction for MY cells, so that they should learn the better to fulfil my purposes. And indeed this fantasy is not quite so wild as it sounds; it is something not very unlike this that doctors do, when they vaccinate for smallpox, or inject cultures of rabies for hydrophobia; we may in a very practical sense say that they are teaching the blood cells to fight the disease; and it is really not very far-fetched to attribute a loyalty and an *esprit de corps*, to a phagocyte, and to conceive it as sympathising with my purpose, just as I myself in a feeble way, tried to 'win the war'.

But I do not want what I have just been writing to be regarded as a mere fantasy. I want it to be applied directly, *mutatis mutandis*, to the individual, in place of the cell. I want the reader to look for a moment at himself as a cell in some human organism; say in his Church, or in the British Empire, and try to think out what the purpose, or purposes, of that organism are; as the cell might be conceived to think out MY purposes. He will see at once that some of its purposes are not his, and yet he will, with more or less conscious willingness, submit himself to them. He will perceive in himself the influence of unselfish values; possibly he will not dignify all of them

by calling them 'moral' values, but among them there will be moral values which he recognizes, and which in general seem desirable to him. He will perceive that he is *de facto*, more or less, an ethical being; only if anyone were to tell him that he was also one *de jure*, he might ask, perhaps even indignantly "Why?"

How then would he answer that question if it were addressed to him by a cell of his own body; by one for example in his appendix, which had got to come out? I am very much afraid he might be tempted to answer "Mind your own business". And indeed, our pragmatism itself forces us to recognize a hierarchy of organisms, in which we may say that an organism is higher than a member thereof; which member itself may be analysed into an organism, higher than the elements into which it has been analysed. And there is in this progress, lower to higher, in purposes of organisms, a one-way-ness of the same kind as the one-way-ness of our estimation of values, or of our accounting for moments of time. A higher organism is justified, as a condition of its own being, in sometimes overlooking the purposes of its own elements, in cases where these conflict with its own purposes. If the particular element, regarded as a conscious mind, such as a human mind, were completely unified with the organism as a whole, though it might recognize purposes of its own conflicting with those of the organism to which it was loyal, it would itself subordinate its private interests; even short of that it might be able to understand the interests of the organism as a whole, although refusing to accept them as its own, or it might make them its own, without understanding them. A man may say—

> "*Video meliora, proboque,*
> *Deteriora sequor*"

or he may accept a social taboo, without understanding, or caring to enquire about the reason for it. But there is also the case of a human mind which does not understand the interests of the organism of which it is a member, not because the owner of the mind does not see them, but because he does not see that they are '*meliora*'. In such a case it is probably useless for the higher organism to argue with its own element;

in most cases the element of the organism will have had ample opportunities of learning, and ignorance of the law is not counted as an excuse; if caught and convicted the man gets punished, for the good of society first of all; not, as people of the highbrow type sometimes seem to assume, for the reformation or instruction of the criminal, only. Or, to put the philosophic point more generally, we may say that if men combine themselves into a higher organism, the purposes of that organism must, *pro hac vice*, prevail over those of the individuals; if the combination is only to play a game, they must play that game; if you live in Rome, you must do as the Romans do. In saying this we do not however lose sight of the fact that human organisms, just as much as human individuals, are not perfect; they may conflict with one another, they may have inherent imperfections in their own internal organizations; that is the meaning of the qualification introduced that '*pro hac vice*', the purposes of the organism as a whole must prevail; to the extent, that is, to which men combine themselves, for a more or less specific purpose, into a higher organism. If the organizations are imperfect, and the organisms only combine fragments of the whole of human society, there will be room for differences of opinion, rival organizations, conflicts of interests; we may even have an *Athanasius contra mundum*; whom history might however subsequently justify. Indeed we may say more; if it were not for such differences of opinion, or the struggle between rival organizations, it would be humanly impossible for a higher ethics, or a higher form of human organism, to evolve. The picture popularly entertained of heaven seems to me even worse than most Utopias; the sitting about on clouds and eternally twanging harps, does not appeal to me; in the moral sphere I can sympathize with Alexander, I should be bored if I had no more temptations to conquer. This is in fact one of those 'mere pictures' which do no good; what we want is a formula, a prescription, for happiness, not a static picture of it.

We perceive then that our Explanations of the universe, so far, provide nothing like a 'mathematical proof' for ethical principles, for us human individuals. It offers verifications of

the explanations which imply that such ethical principles exist, *de facto*, but it offers no verifications implying that they exist *de jure*; it leaves each of us with a right to question them, in detail at all events; and that without being put outside the pale of human society altogether, as a dangerous anarchist. For ethical principles exist *de jure*, for an individual human mind, only in so far as he admits himself to be a member of the organism whose purposes involve that principle, and so far unified with the other members of that organism as to share those purposes. For example, the rules of bridge may be said to exist *de facto*, even for a person who does not play that game; he can, if he wishes to, find them set out in a book; but for him they do not exist *de jure*, unless, or until, he becomes a bridge player, and joins with others in a rubber. So also the obligations of British patriotism exist *de facto*, for any man born 'under the British flag', in the sense that you might also find them set out in a book; but to the mind of an individual Britisher they do not exist *de jure* unless he, instinctively, or consciously and voluntarily, accepts them. But to the public spirit of the British Empire, regarded as an organism, the obligations exist *de jure*, as well as *de facto*; and that organism as a whole may very well take steps to impress, or even to enforce, them on its individual members. It may very well preach, or even enforce, universal military service, for example. To students of theories, of what may be called social ethics, as distinguished from theories founded on some more universal sanction, such as a religion, all this may seem nothing more than a commonplace; but to us it is something more, namely a verification of the explanations upon which our pragmatic theory was founded; and which only seems a commonplace because common sense already accepts the main foundations of our pragmatism; though it does so without having gone into any detailed analysis. It fails therefore to recognize that interferences between an organism and its members, and between those members in relation to the purposes of the organism, are just the things which unify that organism and give it reality. It fails to reorganise, as modern science also sometimes fails to recognize, the same principle obtaining also in the material

world of physical science; although Newton recognized it when he unified the solar system by a principle of interference between the sun and the planets; and modern scientists, albeit perhaps unconsciously, recognize it also when they postulate interferences between a proton and electrons, as unifying them into an atom. Unfortunately there is however a prejudice in the minds of most people which makes them confound the conceptions of reality and permanence. In many instances common sense will of course perceive the distinction clearly enough, when it is pointed out; but perhaps in most of them there will remain some mental reservation. In the case before us this mental reservation takes the form of not quite admitting the reality of an organism of human beings, because it is not permanent. In another case it works the other way round; I can not deny the reality of ME, and consequently I can not get myself to deny MY permanence; I formulate all sorts of explanations to avoid having to do so, explanations which postulate not only MY survival as a spirit after death, but frequently also some pre-natal existence, by the transmigration of souls, or some kindred device. I am not saying that there may not be a great deal in some of these explanations, implying an independent existence for mind apart from matter; I am here only criticising the particular argument for it supplied by the confusion of thought between reality and permanence, for according to our pragmatic theory at all events it is a mere confusion of thought. That theory does not in any way imply that if matter, or mass, or the light-aether, or energy, or the mind, or the ego, is real, it must also be permanent; for all our explanations so far have said, any one of them might be here to-day, and gone to-morrow. Our conception of reality implies indeed interference, and as the Theory of Order shows, and as is obvious to common sense, no doubt, interference implies not a mere picture, but a formula, and therefore a passing in review, a change, a difference of date; and we may say a permanence of something or other, for some interval of time or other. But at the same time it equally implies the non-permanence or something or other, during some interval of time or other. The argument from the non-permanence

of human societies or organisms to their non-reality, or only partial reality, is therefore invalid ; they too may be perfectly real, and possess perfectly real purposes and wills of their own, to-day, and yet be gone to-morrow ; as much so as ' the beasts that perish ' at all events, and in something more than the sense in which ' the evil that men do lives after them '.

But neither do our explanations so far exclude the possibility of a post-mortal, or a pre-natal, existence for human individual minds ; any verifications of such added explanations which may be obtainable by the investigations or experiments of spiritualists, or of bodies like the Society for Psychical Research, would fit in quite easily with our pragmatism. But to our theory the addition of such explanations postulating the existence of minds apart from those associated with physical matter, as the minds of human beings and animals are associated in our pragmatic explanations already, would to us have a deeper significance than that due to the mere postulation of their ' existence ' ; we should have to postulate their interference in some way with us, and that would mean the postulation of (more or less permanent) organisms, including both minds embodied in living men, and minds disembodied, as ' spirits '. And, the postulation of such organisms would further imply that they had (more or less efficient) wills of their own, inculcating (more or less novel) principles. These ' mixed ' organisms, elementary though they might appear to be, would also interfere with higher organisms of human beings ' in the flesh ' ; and it would be natural to postulate further explanations as to interferences between pure spirits, apart from living human beings ; which would result in higher organisms among them ; which again might interfere with the higher organisms in the flesh. All this is, of course, postulated more or less explicitly, not only by spiritualists, but by, I believe, all theologies or religions, as well as by many philosophies which profess no theological inspiration. Premising that as pragmatists we accept any new Explanations only provisionally, subject to verification or otherwise later on, I think we too may accept some of these further Explanations formally ; and we may accept as preliminary verifications at all events, not only any verifications

afforded by so-called spiritualistic phenomena, but the fact that countless millions of men and women, to-day and in past generations, have found 'consolation' in religion; which in our technical language might be translated into saying that their religious explanations had found some verification.

But again we find that what is new, or peculiar to our particular pragmatic theory, is not so much these familiar analytic or individual verifications, as those afforded by its synthetic aspects. It would follow from our theory that it should happen that interferences between spiritual organisms generally, with those of human organisms 'in the flesh', would form higher 'mixed' organisms; with higher purposes, and higher ethical principles, in the technical sense in which we use the comparative 'higher'. As in the case of purely mundane organisms we are not formally justified in inferring that all, or any, of such higher organisms are permanent; *prima facie* at all events one would more naturally assume that they were not; but we might naturally go on to assume that these higher organisms, as well as the purely mundane ones, were undergoing a process of evolution, by which gradually there were emerging more perfectly organized organisms, more completely unified so that the purposes of their elementary members were more nearly in accord with their own purposes, as whole organisms. If this were so, what we mortals on earth would see of it would be that the principles of our own most highly evolved mundane organisms would gradually be converging, as it were towards an asymptot, to an universally accepted ethical code. We should also however, or some of us at all events should, be influenced more or less directly by the higher organisms which included spirits 'not in the flesh'; and they would by sympathetic communication, if not by the more coercive method of trial and error, imposed by their higher purposes, guide not only our human organizations, but the minds of individual living men; inspiring in them higher conceptions of morality, and values not merely personally unselfish, but even socially so, as far as human society is concerned. In this way a Kantian Categorical Imperative might appear to one of us as 'given *a priori*', though by our explanation

it would actually express only the purpose of some higher 'mixed' organism. And so once again we seem up against the question, are we to accept it only *de facto*, or is it *de jure*?

But, as pragmatists, we can not let ourselves slop down into talk about an 'infinite regress'. We may, if we like, just let the question drop, and say no more about it; but we may also go on to propound some final Explanation, however much we may regret our inability to provide convincing verifications for it to everybody. There is nothing inconsistent with our Explanations so far, in propounding yet one more, to the effect that there is one supreme organization, including all consciousness, human or other, in, or not in, the flesh; having the highest purpose, and the highest form of organization of any organism in the Universe. Such an organism might be personified, in a more or less anthropomorphic manner, by analogy with the simpler form of organism I know as myself. I only hesitate to speak of it here as God because to most people that would seem to imply the heaping upon it of all sorts of superlative adjectives; whereas we have seen that the conception of an organism, though it implies power, does not imply absolute power; though it implies purposes which would be called beneficent by that organism itself, they would not necessarily appear as such to lower organisms which were members, or elements only, of the higher organism. The highest organism, or supreme being, would not, on this theory, be responsible for all the acts of subordinate organisms; they would be left more or less of a free hand; they would be given responsibility, and also power in proportion to it. We human individuals, recognizing such a supreme being, and feeling loyalty to it as representing, or personifying, the Universe, would also feel our own freedom of will; and when we consciously were subordinating our purposes to the Universal purpose, we should be allowing our own conduct to be guided by that emotion of loyalty. We should recognize higher values than merely social ones, and higher ethical imperatives than those dictated by considerations of mundane welfare alone. We should recognize, and strive to obey, Christ's first and great commandment; as well as the second, which is like unto it.

INDEX

(Words between inverted commas are more or less technical terms, explanations of which will be found on the pages given).

R. I. SEVERS, 7, SIDNEY STREET, CAMBRIDGE