

ADDRESS.

SOME METHODS OF SPECULATIVE PHILOSOPHY

By PROFESSOR C. D. BROAD.

IF I were asked to define "philosophy" I should begin by describing it as the kind of activity pursued by the men whom we call "philosophers" when they are engaged in their characteristic professional business. There would be no difficulty in giving instances and counter-instances of the term "philosopher." Everyone would agree, *e.g.*, that Plato, Aristotle, Descartes, Spinoza, Leibniz, Locke, Hume, Kant, Hegel, and McTaggart were eminent philosophers; and everyone would agree that Archimedes, Shakespeare, Gibbon, Gauss, and Faraday, *e.g.*, though men of the highest intellectual eminence, were not primarily philosophers. Again, there would be no difficulty in giving instances and counter-instances of philosophical activities on the part of philosophers. Everyone would agree, *e.g.*, that Leibniz was doing philosophy when he wrote his letters to Arnauld and that he was not doing it when he was writing his history of the House of Brunswick.

As in all such questions we should soon come up against the following difficulty. There would be persons about whom one would hesitate whether to call them philosophers or not, and whom some people would and others would not call by that name. And there would be activities, whether practised by admitted philosophers or admitted non-philosophers, about which there would be a similar hesitation in asserting or denying them to be philosophical. Might it not be said, *e.g.*, that Galileo, though primarily a great physicist, made important contributions to philosophy? Was Einstein merely doing mathematical physics when he enunciated first the special and then the general theory of relativity. Was he not contributing to philosophy? Lastly, one and the same person may be about equally eminent both in activities which are universally held to be philosophical and in others which are universally held not to be so. Outstanding examples are Whitehead

and Eddington in our days, and Descartes and Leibniz in former times. In such cases there will be certain marginal activities about which we hesitate to say whether they are or are not philosophical.

Now it might be suggested that the phrase "philosophical activity" is fundamentally ambiguous, *i.e.*, that an activity is called "philosophic" if and only if it has one or more of a certain limited number of alternative characteristics which neither entail nor exclude each other and which cannot be regarded as specific modifications of a single generic characteristic. It might be said, *e.g.*, that Hume and Hegel were certainly both philosophers; that Hume was undoubtedly philosophizing, well or ill, in his analysis of causation; and that Hegel was undoubtedly philosophizing, well or ill, in his attempt to prove by the dialectical method that the universe has a certain complicated kind of formal structure. But, it might be said, there is no single non-disjunctive characteristic, and no conjunction of such characteristics, common and peculiar to what Hume was doing and what Hegel was doing. To philosophize, on this view, is to perform one or another or a mixture of at least two fundamentally different kinds of activity, one of which is exemplified by Hume's attempt to analyze causal propositions and the other by Hegel's attempt to establish the formal structure of the universe by dialectical reasoning.

I think it is quite clear that the word "philosophy" has always been used to cover the kind of thing that Hegel did and that McTaggart did in addition to the kind of thing which Hume did and which Moore does, whether or not these be two radically disparate kinds of activity. Anyone who proposes that the name "philosophy" shall be confined to the latter kind of activity is proposing that it shall henceforth be used in a new and much narrower sense, and he should be expected to give reasons for this linguistic innovation. He might, *e.g.*, give as his reason that philosophizing, in the sense of doing the kind of thing that Hume did, is a practicable and useful activity; whilst philosophizing, in the sense of doing the kind of thing which Hegel did, is not only impracticable and therefore useless,

but is also a deceptive activity, based on certain fundamental illusions which have now been detected and explained but are still dangerously insidious.

This would, of course, need to be proved, and the proof would certainly be "philosophical" in some sense or other. Anyone who used it would therefore have to be careful that he did not, as Hume inadvertently did, condemn his own writings by implication to the flames, *i.e.*, that he did not employ premises or modes of reasoning which are "philosophical" in the sense which he condemns as impracticable and deceptive. He would also have to explain, if he could, how it came about that the practicable and useful activity had been so intimately associated throughout the history of philosophy with the impracticable and spurious one.

This brings me to my main point. I am inclined to think that there are two features which are together characteristic of all work that would generally be regarded as philosophical, and a third which is often present in a high degree but may be evanescent. The two which I think are always present may be called "analysis" and "synopsis"; the one which may be present in a vanishingly small degree can be called "synthesis." Analysis and synopsis themselves may be present in very different degrees and proportions. Hume's work, *e.g.*, is so predominantly analytic that it might be denied to be synoptic, and Hegel's is so predominantly synoptic that it might be denied to be analytic. But I believe that both are always present, and that each involves some degree of the other. Lastly, there is a very high positive correlation between synopsis and synthesis. Synthesis presupposes synopsis, and extensive synopsis is generally made by persons whose main interest is in synthesis.

In this paper I do not propose to say anything further about philosophical analysis. Everyone is familiar with instances of it and knows roughly what the phrase means, and the notion has been discussed *ad nauseam* in England and America during the last twenty-five years. Let it suffice to say crudely that it consists in clearing up the

meanings of all the fundamental kinds of sentence which we habitually use, *e.g.*, causal sentences, material-thing sentences, sentences with the word "I" as grammatical subject, sentences with temporal copulas, ethical sentences, religious sentences, and so on.

Synopsis and synthesis are specially characteristic of what may be called "speculative philosophy," and that is why the latter phrase occurs in the title of my paper. I will begin with the notion of synopsis.

There are different departments of fact, or different regions or levels within a single department, which it is very unusual for the plain man or even the professional scientist or scholar to contemplate together and to view in their mutual relationships. Yet they do co-exist and are relevant to each other and they must presumably be inter-related in some coherent way. Most men at most times, and many men at all times, conduct various parts of their living and their thinking in relatively watertight compartments ; turn blind eyes to awkward, abnormal, or marginal facts ; and skate successfully on the surface of phenomena. But the desire to see how the various aspects of experience hang together does arise from time to time in most intelligent men, and philosophers are persons in whom it is specially strong and persistent. Now I understand by "synopsis" the necessary preliminary towards trying to satisfy this desire, *viz.*, the deliberate viewing together of aspects of human experience which are generally viewed apart, and the endeavour to see how they are inter-related. I shall now give several examples to illustrate what I have in mind when I speak of synopsis.

Examples of Synopsis.—(1) As our first example we will take the problem of sense-perception. Why is there a problem? (i) In the first place, because, if we attend carefully, we note such facts as these. (a) Two observers, who are said to be seeing the same part of the same thing at the same time, are often not being presented with precisely similar visual appearances of that object. (b) One and the same observer, who is said to be seeing the same unchanged part of the same thing at different times and

from different positions, is often not presented with precisely similar visual appearances of that object on both occasions. Commonsense is, of course, more or less aware of such minor variations in normal sensible appearances, and it has certain modes of expression for describing them ; but in the main it ignores them. Certain sciences and arts, *e.g.*, geometrical optics and theory of perspective, deal explicitly and systematically with some of these facts.

(ii) Secondly, because there are visual experiences which are abnormal in various ways and degrees, but are similar to and continuous with those which are normal. They range, *e.g.*, from mirror-images and straight sticks that look bent when half immersed in water, through double images seen when one eyeball is pressed aside or when the percipient is drunk, to dreams and full-blown waking hallucinations. Those which come at the wilder end of this scale cannot plausibly be interpreted in the naively realistic way in which the language of commonsense suggests that normal sense-perceptions should be interpreted.

(iii) Thirdly, because of facts which are still quite unknown except to a minority of grown-up educated persons, and which must have been completely hidden from everyone at the time when the language in which we express our sense-experiences was first formed and for thousands of years afterwards. One of these is the physical fact that light takes time to travel ; and that the visual appearance which a remote object presents at any time to an observer depends, not on the shape, size, position, etc., of the object at that moment, but on what they were at the moment when the light now striking the observer's eye left the object. Another of them is the physiological fact that visual appearances vary with certain changes in the observer's eye, optic nerve, and brain even when the retinal stimulus is precisely similar ; and the psychological fact that they are in part conditioned by his past experiences and present expectations.

There is a problem of sense-perception, in the philosophical sense, for those and only those who try to envisage

all these fact together and to interpret sense-perception and its implications in relation to all of them. Since it is plain that they are all relevant to it, it is desirable that *someone* should take this synoptic view. Since the language in which we express our visual sense-perceptions was formed unwittingly in prehistoric times to deal in a practical way with a kind of normalized extract from our visual experiences, and in complete ignorance of a whole department of relevant physical, physiological, and psychological facts, it would be a miracle if it were theoretically adequate and if it were not positively misleading in some of its implications. And, since it is not the business of the plain man or the physicist or the physiologist or the psychologist, as such, to undertake the synopsis, it is desirable that a special group of experts with adequate factual knowledge and suitable training and interests should do so. These experts are professional philosophers.

(2) As a second example of synopsis I will take what may be very roughly called the "mind-body" problem.

(i) It is plain to commonsense that many of a person's sensations and feelings follow immediately upon and vary concomitantly with certain events in his eyes, ears, joints, etc. On the other hand, many experiences, *e.g.*, processes of day-dreaming, deliberating, reasoning, etc., do not seem *prima facie* to be covariant with events in the body. Again, it is plain to commonsense that certain of a person's overt bodily movements follow immediately upon and vary concomitantly with certain of his experiences, *viz.*, his desires and intentions to express certain thoughts or to make certain changes in his own or in foreign bodies. There is no doubt at all that the popular ideas of cause and effect, and the associated ideas of agent and instrument, of activity and passivity, and so on, are mainly if not wholly derived from the facts which I have been describing.

(ii) The sciences of physiology and anatomy make it almost certain that the *immediate* bodily antecedents and correlates of sensations and feelings are *not* events in one's eyes, ears, joints, etc., but are slightly later imperceptible chemical or electrical changes in certain parts of one's

brain. They also make it almost certain that the *immediate* bodily consequents and correlates of setting oneself to fulfil an intention are *not* the overt bodily movements which one is setting oneself to make, but are slightly earlier imperceptible chemical or electrical changes in certain parts of one's brain.

(iii) It is further alleged, on the authority of these sciences, that there are immediate bodily antecedents and correlates of the same general nature, viz., chemical or electrical events in certain parts of the brain, even to those mental processes, such as deliberating, comparing, abstracting, reasoning, etc., which do not seem *prima facie* to be covariant with bodily events.

(iv) The physical sciences have developed a concept of causation in terms of regular sequence and concomitant variation, in which the notions of agent and instrument, activity and passivity, etc., play little if any explicit part. So far as the notion of acting and being acted upon survives in physics, the physicist thinks of one system as acting on another when energy is transferred from the former to the latter ; or when the former, without doing work on the latter, modifies the direction of motion of some of its parts by fixed constraints. Now there is fairly good empirical evidence that a living organism never gains nor loses energy except by transference from or to some other part of the *material* world. And it is difficult to picture a volition exercising guidance without work on atoms or electrons in the brain, as a material constraint, such as the thread of a pendulum, does on a moving macroscopic body, such as a pendulum-bob.

Now these various mutually relevant facts are hardly ever viewed synoptically except by philosophers. Commonsense is quite ignorant of many of them and common language had grown up and crystallized ages before they were known or suspected. On the other hand, scientists who are familiar with all of them tend to concentrate on one at a time and temporarily to ignore the rest. When they confine their attention to the physical and physiological and anatomical facts they are inclined to take the

view that men are "conscious automata," *i.e.*, that all our mental states, including processes of reasoning, willing, etc., are mere by-products of states of brain which are determined by purely physical and physiological antecedents. But their daily lives and all their professional activities presuppose a view which is shared by plain men and which seems *prima facie* to be incompatible with the conscious automaton theory.

Scientists all assume in practice that, when they design and carry out an experiment, they are initiating certain changes in the material world which would never have taken place unless they had been thought out beforehand, desired, and deliberately led up to. They assume that their assent to or dissent from the various alternative interpretations which might be put on the results of an experiment is determined by processes of *reasoning*, demonstrative or probable, in which belief is given or withheld in accordance with *evidence*, which may be favourable or unfavourable, weak or strong or coercive. Now all this involves concepts, and seems *prima facie* to involve modes of causation, completely different from those in terms of which the conscious automaton theory is formulated.

To sum this up briefly. The scientist who investigates and theorizes about man and his powers and activities is himself a man exercising certain characteristically human powers and activities. But the account which he is apt to give of man, when he treats him as an object of scientific investigation, seems *prima facie* difficult to reconcile with the occurrence and the validity of his own most characteristic activities as investigator, experimenter, theorist, and reasoner. The need for synopsis by someone who is aware of all the main facts and can hold them steadily together in one view is here particularly obvious.

(3) As a third example of synopsis I will take what may roughly be called the "free-will" problem. The main facts are these. (i) Suppose I believe that a certain course of Action *A* is right, or that it would be to my interest in the long run ; and suppose I know that it is difficult and repellent in itself or in some of its consequences, and

that I shall carry it through only if I make a continuous and exhausting effort. Suppose I believe that alternative *B* is wrong or is against my long-term interests, but know that it requires no particular effort and that I shall certainly slip into it if at any time I cease to put forth effort in the direction of *A*. Suppose that I decide on *A* and set myself to carry it out. It may happen after a while that, in full consciousness that *A* is right or is to my long-term interest and that *B* is wrong or contrary to that interest, I deliberately cease to put forth the required effort in the direction of *A* and, as we say, "let things rip," and slip into *B*. Or it may be that, before doing this, I deliberately banish to the margin of my consciousness my knowledge of the reasons for *A* and the reasons against *B*, and let the reversion from *A* to *B* take place in the temporary and superficial state of half-deception which I have deliberately created. In either case, it seems to me, I am quite convinced that I could have done otherwise. I could have kept up the effort, or made the required increase in it, in the *A*-direction. I could have kept the relative merits of *A* and *B* fairly together before my mind. Moreover, "could" seems to be used here in some sense which is not reducible to "would have, if." I do not seem merely to mean the triviality that I should have acted differently if I had willed differently, or that I should have willed differently then if I had willed differently in the remoter past, or that a person with a different nature and dispositions from mine would have acted differently.

(ii) Many of our common moral judgments and morally directed emotions, *e.g.*, the judgment that a person ought to have done something which he did not do, and the feeling of remorse for something which one has done and believes to be wrong, seem to presuppose the truth of this conviction. All such judgments are false *in principle*, and all such emotions are *in principle* misplaced, unless it be true that the very same person who in fact willed *X* and put forth a certain degree of effort to realize it could at that moment and in those circumstances have instead willed *Y* or put forth a different degree of effort to realize *X*.

(iii) Many people find it self-evident on reflexion that, given the dispositional properties of a substance, its past history, its circumstances at a given moment, and the laws of nature (including those of psychology), it is impossible that anything should then have happened in it other than what did happen.

(iv) Whether this be self-evident or not, everyone does in fact assume it or something like it in all his practical and theoretical dealings with macroscopic physical events not due to volitions and with mental events other than volitions. In particular, physiologists assume that those events in one's brain which they take to be the material basis of our volitions and our puttings-forth of effort, are completely determined by physical causes. If so, how can the volitions and the puttings-forth of effort, which are held to be the mental aspect or the product of these events in our brains, be in any sense or degree undetermined?

(v) Whilst it is difficult to reconcile the notion of moral responsibility, merit and demerit, etc., with the view that our volitions and our puttings-forth of effort are completely determined, and particularly with the view that they are completely determined by physical causes, the mere admission that they are within certain limits undetermined would not suffice to give what is wanted. For it is required that they shall be expressions of our permanent inner nature and not merely accidental events that happen in us. And yet, just in so far as they are undetermined, they seem to fall under the latter heading.

Here again the need for synopsis is evident. It seems *prima facie* that each of us conducts one part of his life on the assumption of complete determinism and another part on the assumption of incomplete determinism *plus* something else more positive which it is very hard to formulate clearly. And these two parts are not sharply separated; they overlap and interpenetrate each other. Most of us generally manage to ignore one aspect at a time and concentrate on the other; but, however convenient this may be in practice, it is intolerable in theory to anyone with a tidy mind who has become aware of the facts.

(4) The examples which I have given have been taken from fields which philosophers have long and diligently tilled. My fourth and last example will be taken from a region which most of them still disgracefully neglect to familiarize themselves with or to cultivate. I allude to those facts which have been alleged and suspected throughout the ages and have for the first time been properly investigated and in part verified during the last sixty years by the Society for Psychical Research in England and by other workers in the U.S.A. and on the Continent. I shall refer to these facts as "paranormal phenomena." The following are, in my opinion and in that of most persons who have given adequate time and trouble to the study of the relevant evidence, well established.

(i) The following forms of paranormal cognition have been established under rigidly controlled experimental conditions. (a) A subject may cognize correctly, with a frequency which so greatly exceeds chance expectation that the odds against such an excess being fortuitous are astronomical, what another person has been and is no longer perceiving, under conditions where there is no possibility of relevant information being conveyed to him by normal sensory means. This may be described as "post-cognitive telepathy." The same is true if we substitute the phrase "is contemporaneously cognizing" for "has been and is no longer cognizing" in the above sentence. This may be called "simultaneous telepathy." (b) A subject may cognize correctly, with a frequency which exceeds chance-expectation to the same high degree, what he himself or another person will begin to perceive at some later date, under conditions where there is no possibility of his consciously or unconsciously inferring this future event either with certainty or with probability from any data available to him at the time. The two cases here described may be called respectively "precognitive auto-scopsy" and "precognitive telepathy."

(ii) There is a mass of well-attested and carefully investigated cases of the following kind. A has an hallucinatory waking experience of a very specific and uncommon

kind, and this experience either imitates in detail or unmistakably symbolizes some crisis in the life of a certain other person *B*, *e.g.*, death or a serious accident or sudden illness, which happens at roughly the same time. Such sporadic correlated experiences may happen when *A* and *B* are separated by great distances, and where *A* had no reason whatever to expect that any such event would happen to *B*. Any one of them taken separately might perhaps be regarded as an extraordinary chance-coincidence. But I do not think that anyone who is aware of the number and variety of such cases which have stood up to critical investigation could possibly regard this as a reasonable account of them taken collectively. It is plain that, on any ordinary criterion of causation, there is some causal connexion between the occurrence of the crisis in *B* and the occurrence at about the same time in *A* of the waking hallucination which imitates it or symbolizes it.

(iii) Cases of the following kind have been observed and very carefully investigated. Each of a number of different persons, *A*, *B*, *C*, and *D*, living in remote places and not communicating with each other, is producing a series of automatic scripts at frequent intervals throughout the same longish period. A certain peculiar phrase or sentence, and subsequent repetitions and variations of it, will begin to appear in *A*'s scripts. This will have no special significance for *A*. A certain different phrase or sentence, and subsequent repetitions and variations of it, will begin to appear at about the same time in *B*'s scripts. This will have no special significance for *B*. The same will be true *mutatis mutandis* for *C* and *D*. When the scripts of *A*, *B*, *C*, and *D* are compared, it is found that these separately insignificant phrases or sentences combine to indicate unmistakably a certain out-of-the-way classical, literary, or historical topic. This is generally quite outside the normal knowledge of most of the automatists. On the other hand, it *was* within the knowledge of a certain deceased scholar, *e.g.*, F. W. H. Myers, Dr. Verrall, or Professor Butcher ; it had a special interest and significance for that scholar when he was alive ; and the scripts claim to be communications from

him. Moreover, in the context of such phrases or sentences in *A*'s scripts there will often occur a request that reference shall be made to the contemporary or subsequent scripts of the other automatists for further elucidation of the meaning ; and a statement will be made that the communicator is trying to convey an idea by this roundabout method as an experiment. Such cases are called "cross-correspondences," and there was an outbreak of them among certain automatists soon after the deaths of Myers, of Verrall, and of Butcher. They clearly involve intelligence and intention of a fairly high order on the part of *some* person or persons, living or dead, and the power to carry out that intention by telepathically influencing a number of minds in different but appropriately interconnected ways. And they certainly suggest *prima facie* the continued existence, intellectual activity, and planned action of certain definite individuals after the death of their bodies.

Now the philosophical importance of the paranormal facts which I have been describing is due to the following circumstances. They are not merely odd and uncommon, like the feats of calculating boys or the occurrence of babies with six toes or with webbed fingers. They seem to conflict with certain very general restrictive principles which we unhesitatingly take for granted as the fixed framework within which all our practical life and our scientific theories are confined. We assume, *e.g.*, that the only ways in which one person can possibly get to know about the contemporary or past experiences of another are the following. Either by hearing and understanding sentences which he utters or reading and understanding sentences which he has written ; or by hearing and interpreting cries which he makes or seeing and interpreting his gestures or facial expressions ; or by seeing and making conscious or unconscious inferences from persistent material records, such as pictures, tools, pottery, etc., which he has made or used in the past. Now the occurrence of post-cognitive and simultaneous telepathy, whether of the experimental or the sporadic kind, seems to involve a breach of that restrictive principle.

Again, we assume that there are only two ways in which a person can forecast a future experience of himself or of another person. One is by explicit inference from data supplied to him by his present sense-perceptions, introspections, and memories, together with his knowledge of the laws of nature. The other is by non-inferential expectations, based either on the fact that he has formed a certain intention or on associations which have been formed by certain repeated sequences in his past experience and are now stimulated by some present experience. The occurrence of precognitive autoscopy and precognitive telepathy seems to involve a breach of this restrictive principle.

Then, again, we assume almost as a self-evident principle that an event cannot begin to have effects until it has happened. This entails that it cannot contribute to cause any event that preceded it. But in the case of precognitive autoscopy or precognitive telepathy it looks as if the later event, which is foreshadowed by the earlier experience, must have been an essential factor in causing that experience. This is, I think, *one* reason, and perhaps the only *good* reason, why we are all inclined to put up a specially strong resistance against evidence in favour of paranormal precognition.

Lastly, educated commonsense in Europe and America takes for granted that, when a person's body dies, he either ceases to exist altogether, or, if not, he ceases to be able to influence ordinary physical objects or the minds of men and animals whose bodies are still living. Also, as we have seen, it is often held that science shows that human beings are conscious automata. This seems to imply that the supposition that a person's mind might survive the death of his body is either meaningless or quite certainly false. Yet the cross-correspondences and certain other mediumistic phenomena do very strongly suggest that this sometimes happens.

Now the vast mass of normal phenomena which have led to the implicit acceptance of the restrictive principles just mentioned, coexist with the occasional paranormal phenomena which seem to conflict with those principles.

No one can ignore the former. Those who ignore the latter, and continue to philosophize as if these restrictive principles were unquestioned and unquestionable, are simply emulating that not very intelligent bird the ostrich. Those philosophers who assert that the meaning of a proposition is essentially bound up with the ways in which it might be verified or refuted or confirmed or weakened almost always tacitly assume that the only possible ways in which this could happen are normal sense-perception or introspection. Their more restrictive conclusions follow, not from the verification principle alone, but from the combination of it with this restrictive assumption about the possible forms of human cognition of particulars. Now the restrictive assumption is logically independent of the principle, and the facts which I have indicated show that it is false.

Again, if a philosopher says that such a sentence as "Mr. Jones survived the death of his body and remained intelligent and active afterwards" is meaningless, the appropriate comment would seem to be: "Well, and what then?" Obviously our ordinary modes of speech arose in connexion with the situations with which mankind has to deal in its normal daily life and not in connexion with those extremely odd and comparatively rare situations which form the subject of psychical research. There would, therefore, be nothing in the least surprising if these modes of speech should suggest mutually inconsistent ideas when they are used to describe and interpret paranormal facts. The remedy is either to invent new and more appropriate verbal forms or to stretch the meanings and implications of the old ones; it is not honest to ignore or deny the facts, and it is not helpful to stand for ever dithering and nagging about the current usage of words. The need to contemplate normal and paranormal facts in a single synoptic view is surely obvious; and it is the business of the philosopher, rather than the natural scientist, the psychical researcher, or the plain man, to try to make such a synopsis.

I hope that the four examples which I have taken will have made plain what I mean by "synopsis"; why I

think that it needs doing ; and why it seems desirable that persons with the special kind of training and interests which we call "philosophic" should undertake this task.

Synopsis and Analysis.—I think that there is a very close connexion between synopsis and the process of analysis which everyone admits to be a characteristically philosophical activity. It is generally synopsis which gives the stimulus to analysis. As I have shown in my examples, it often happens that each of several regions of fact, which we generally contemplate or react to separately, gives rise to its own set of concepts and principles ; that each such set seems satisfactory and internally coherent ; but that, when we contemplate these various departments together, we find that the corresponding sets of concepts and principles seem to conflict with each other. The intellectual discomfort thus produced in a person of philosophical disposition is perhaps the most usual motive for trying to analyze those concepts and to formulate those principles clearly. Such a process is an indispensable step towards deciding whether the inconsistency is real or only apparent and towards formulating it precisely if it is real ; and this is a precondition of any efficient attempt to resolve it.

Synopsis and Synthesis.—Synopsis is not an end in itself. It not only provides the stimulus for analysis, but it also furnishes the basis for something else, which may be called "Synthesis." The purpose of synthesis is to supply a set of concepts and principles which shall cover satisfactorily all the various regions of fact which are being viewed synoptically. The concepts and principles characteristic of each separate department, in so far as they are valid, must be shown to follow from, or at least to cohere closely with, this more general set, under the special conditions and limitations peculiar to that department. In so far as any of them are not strictly valid it must be shown why they are so nearly so that they seem to be completely satisfactory while we confine our attention to that department. The apparent conflict between the concepts and principles characteristic of different regions of fact must be shown to arise from the valid application of these common

concepts and principles in different contexts and under different special limitations. Even when there is no conflict to be solved it is likely that contemplating together several regions of fact, which are usually contemplated and reacted to separately, will reveal certain analogies between their contents or their structure and certain inter-relations between them as collective wholes.

Some further Remarks on Synopsis and Synthesis.—Having now explained the notions of Synopsis and Synthesis and their inter-relations, I want to make some supplementary remarks about them.

(1) Intellectual activities which are genuinely philosophical, in that they involve deep analysis, wide synopsis, and illuminating synthesis, occur from time to time within some special science. This is particularly obvious when the science is concerned, as physics is, with very fundamental and pervasive features of reality. I could certainly count as philosophical the work done by Galileo on the analysis of kinematic and dynamical phenomena, and the correlated work of synthesis in which the formulation of the three laws of motion and the law of gravitation by Newton is an outstanding phase and the unification of these laws by Lagrange, Hamilton, and finally Einstein is a further development.

Again, the situations which led respectively to the formulation of the Principle of Relativity and the Uncertainty Principle are typical of what I have exemplified under the head of synopsis, and the principles themselves are typical of what I have described as synthesis. In the case of relativity there were many different kinds of possible experiments which, in accordance with well-tried and generally accepted principles, might have been expected to provide perceptible evidence for the motion of a body relative to the surrounding ether. The results of all these experiments were completely negative. Yet, on the other hand, there were also many known facts which, in accordance with well-tried and accepted principles, were incompatible with the supposition that a moving body drags the surrounding ether along with it. In the case of quantum

mechanics there was an enormous mass of very accurately known and highly co-ordinated facts which seemed to entail that light is of the nature of transmitted waves and not of the nature of emitted particles, and there were other facts, just as accurately known and as highly co-ordinated, which seemed to entail the exact opposite. The Principle of Relativity and the Uncertainty Principle are clear instances of synthesis, based on synopsis, and preceded and made possible by a more profound analysis of generally accepted concepts and principles.

The results of such synthesis in physics have the advantage that either they themselves can be stated mathematically or that they impose certain conditions on the form of equations which express possible physical laws. Hence their consequences can be rigidly deduced. This is seldom, if ever, true of syntheses which cover several widely different fields of fact, *e.g.*, man considered as reasoner, experimenter, and morally responsible agent, and man considered as an object of physiological and psychological experiment.

It is worth while to remark that a certain type of synthesis may be suggested by a great philosopher, who is not an expert physicist or mathematician, or at a time when physics and mathematics had not reached a certain stage of development which it afterwards attained. His suggestion may then and for long afterwards be difficult to grasp and may seem very unpalatable. Yet, when physics and mathematics have developed further, it may be easy for an expert to formulate it clearly and to work out its consequences and for non-experts to grasp it. And it may then be seen to be quite plausible and very illuminating. I can think of several examples, but I shall content myself with the following.

In the Second Book of his *Ethics* Spinoza tries to formulate a theory of bodies consistent with his general principle that there are no finite continuants, that the only genuine continuant is God, and that God is a substance which is at once material and mental. I doubt if it was possible for Spinoza or anyone else to formulate such a theory of bodies

clearly or satisfactorily at the time. But in the XIXth century Lord Kelvin was able to state clearly and to work out in considerable detail the theory that an atom is a state of persistent localized vortex-motion in the ether ; that what we count as changes in an atom are of the nature of perturbations in such a persistent localized circulation ; and that compounds are related to their elements somewhat in the way in which a complicated wave-system is analyzable into superposed simple-harmonic component waves. If we think of Spinoza's "God considered under the Attribute of Extension" as equivalent to Lord Kelvin's ether and Spinoza's *corpora simplicissima* as equivalent to Lord Kelvin's vortex-atoms, Spinoza's suggestion, at any rate as regards the material aspect of reality, becomes intelligible and illuminating.

(2) Synopsis and synthesis both take place at various levels. I have just given examples of them within a single region of fact, viz., that of physics. At a higher level one would try to get a synoptic view, *e.g.*, of the phenomena of organic and inorganic material things and processes, and try to synthesize them into a single coherent scheme. At a still higher level one would take into one's view the facts of mental life at the animal level, and then at the level of rational cognition, deliberate action, specifically moral emotion and motivation, and so on. Finally, if no account had so far been taken of paranormal phenomena, these would have to be brought into the picture, and an attempt made to synthesize them with the normal facts. As each new department was considered it would be necessary to review the syntheses which had seemed fairly satisfactory at the previous level. Some of them might not need to be rejected or even seriously modified, but others might have to be completely abandoned or considerably altered when a new department of facts was brought into the picture.

Here again I will give one example out of several which I could mention. Bergson suggested the theory that the function of the brain and nervous system and sense-organs is in the main eliminative and not productive. According to him, each person at each moment is potentially capable

of remembering all that has ever happened to him and of perceiving everything that is happening anywhere in the universe. What has to be explained is, not how we *do* remember or perceive the particular events and things of which we are consciously aware at any moment, but why we *do not* then remember or perceive any events or things *beside* these. According to Bergson, the function of the brain and nervous system is to protect us from being confused and overwhelmed, to shut out enormously the greater part of what we should otherwise perceive and remember at any moment, and to leave us only with that very small and very special selection from our knowledge which will be biologically useful at the time.

Now it is true that Bergson enunciates and defends this theory in reference to its alleged close coherence with the facts of normal cognition and its pathological disturbances. But my impression is that, so long as we confine ourselves to that region, the suggestion, though ingenious and original, is hardly plausible. It seems to me, however, to take on a very different aspect when we bring the facts of paranormal cognition into the picture. Many of them seem to fit very well into this part of Bergson's scheme and rather ill into the more usual view of the function of the brain and nervous system in cognition. Now, if that be so, it may be necessary to revise certain of one's previous attempts at synthesis. It may behove us to try much more seriously to synthesize the facts of normal cognition on Bergsonian lines.

How are Principles of Synthesis Discovered?—I am sure that it is impossible to give rules for the discovery of principles of synthesis in philosophy, just as it is impossible to give rules for suggesting fruitful hypotheses and colligating a mass of observations in science. But the following remarks on the general procedure of speculative philosophers may be worth making.

(1) What often happens is this. A philosopher is strongly impressed by some feature which is highly characteristic of a certain important region of fact, and which within that region is felt to be completely intelligible and a source

of satisfactory explanations. He then discovers or thinks he discovers analogies between that region and others in which that feature is at first sight not prominent and perhaps not even noticeable. Then he may note that, even within the region of which this feature is characteristic, it appears in a whole range of different forms and different degrees. In some of these it stares one in the face ; in others, it might have escaped notice altogether unless they had been connected with the outstanding instances by a series of intermediate cases. He then tries to abstract and generalize this feature into a flexible principle, capable of manifesting itself in very dissimilar ways in different regions of fact, and such that the differences in its manifestations are connected in an intelligible way with differences in the circumstances. Finally, he tries to show that this principle is, in fact, operative in those regions in which it seemed at first sight not to be so. In this way, he feels that he has discovered order and unity pervading the collection of various regions of fact which he is surveying synoptically.

As an example of this I will take Aristotle's concept of Matter and Form. This seems to have been a generalization from the very familiar fact of a workman or artist making out of a common mass of raw material, *e.g.*, clay, a number of artificial objects of various kinds, *e.g.*, cups, plates, bricks, etc., in accordance with an idea of such an object and a desire for it which is already present in his mind and guides his actions in making it. There is the further fact that the informed matter resulting from one such operation, *e.g.*, bricks, may become the raw material for another such operation of a higher order, *e.g.*, the building of a house. Now this notion covers a very large region of human activities and their products, and within that region provides perfectly satisfactory accounts of the origin of particular objects. Again, there are many other human activities which present obvious analogies to that of deliberately making an artifact out of raw materials, and yet diverge from it in various important directions, *e.g.*, making a speech, writing an essay, singing a song, and composing and playing a bit of music. Lastly, there are

certain products of animal activity, *e.g.*, nests and honeycombs, which look very much like human artifacts.

Now the development, self-maintenance, and reproduction of a plant or animal obviously resembles the deliberate production of an artificial object in certain respects, and equally obviously differs *prima facie* in others. These processes look as if someone had the desire to produce and maintain, *e.g.*, an oak-tree or a cat ; as if he tried and for a while succeeded in imposing the oak-form or the cat-form on such raw materials as water, carbon-dioxide, mineral salts, dead mice, milk, catsmeat, etc. ; and as if sooner or later, in the case of each individual oak or cat, his efforts became less and less successful and finally failed altogether. It also looks as if someone, who foresaw this breakdown in the case of each individual, desired that there should always be oak-trees and cats, and arranged with great ingenuity that this should be secured by sexual reproduction. On the other hand, we know of no external artificer of whom we can say that he, in fact, constructed and is trying to maintain this cat or that oak-tree in accordance with an idea and a desire in his mind.

So, if we want to carry the analogy into the realm of organisms, we may be forced to do one of two things. One is to think of an individual plant or animal as an artifact produced and maintained by some *non-natural* external artificer, *e.g.*, a god. The other is to think of it as standing to *itself* in the relation of artificer to artifact, or to think of a *certain part of it*, *e.g.*, an animal or vegetable soul, as standing in that relation to the rest of it. The former development keeps the notion of an artificer who is *external to* his artifact, but at the cost of putting him outside the order of nature. The other, at the first move at any rate, keeps him within the order of nature ; but at the cost of replacing the familiar notion of a person making a thing according to his designs with the unfamiliar and barely intelligible notion of a person or a thing making *itself*, or of one part of a thing making the *rest of it*, in accordance with his or its designs.

(2) I think that a very important exercise for the speculative philosopher is to devote a good deal of attention to marginal and abnormal cases within normal and familiar regions of phenomena. The case may be put generally as follows.

It may happen that several characteristics, C_1 , C_2 , etc., are very strongly associated and have a very high positive correlation with each other in all normal human experience. The former means that it is very unusual for any of them to occur without all the rest. The latter means that a high value of any one of them is nearly always accompanied by high values of the others, and that a low value of any of them is nearly always accompanied by low values of the others. In such cases it may be difficult to distinguish the characteristics, and almost impossible to conceive that they do not entail each other or that they are not just different aspects of a single characteristic. But, if attention is paid to marginal, abnormal, or pathological cases, it may be found that some or all of these characteristics can occur in isolation from the rest, or that some can occur in high values accompanied by the others in low values. It may then strike a philosopher that their high association and high correlation in normal cases within a certain region of fact may be due to the fulfilment there of certain assignable conditions which need not be fulfilled always and everywhere. He may then be able to detect, in other regions of fact, the presence of some of these characteristics in isolation from the rest, or the presence of a combination of all of them in which some are present in a high degree and the rest in a very low degree. In this way a principle of synthesis may be suggested to him which he would not otherwise have thought of.

An obvious and elementary example of this is the importance of such experiences as mirror-images, dreams, and waking hallucinations for the philosophy of sense-perception and the physical world. In mirror-images the normal correlation between the deliveries of sight and of touch breaks down. In dreams we have visual experiences very much like those of normal waking life, but it is evident

that they occur without the eye being stimulated by light from an external object as in normal visual perception. In waking hallucinations the subject's eyes are open and he may have auditory and even tactual experiences which seem to bear out his visual experience ; but the normal correlation between what he ostensibly perceives and what other persons in his neighbourhood ostensibly perceive breaks down. Even this breakdown may be only partial, for there are well-attested cases of collective hallucination. Thus we have a series of experiences from ordinary dreams at one end, through singular and collective waking hallucinations and optical delusions, to perfectly normal waking sense-perceptions. The contemplation of such a series is philosophically most illuminating.

Another important example is provided by the study of alternating personality, co-conscious personalities, hypnosis, psycho-analysis, etc.,. If we confine our attention to normal grown-up Western Europeans in their most alert and integrated moments, to the *façade* which they present to their fellows in ordinary social intercourse, and to the appearance which each presents to himself when he is not taken off his guard, we shall be inclined to think it evident that every experience belongs to one and only one self, that every human organism is animated by one and only one self from the cradle to the grave, that every self animates one and only one organism, and so on. A study of the abnormal facts which I have mentioned sets us free for speculations which we should not otherwise have thought of, or should not have thought it worth while to follow up. It becomes conceivable that there may be experiences which do not belong to any self, experiences which belong to several selves, groups of experiences interconnected on other principles than those which are characteristic of selves, human organisms which are animated simultaneously or successively by several selves, and selves which habitually and predominantly animate one organism but occasionally and partially animate another, and so on. It is hardly necessary to point out how useful this shaking loose of our

associated ideas may be in trying to synthesize, *e.g.*, para-normal phenomena with normal ones.

Before leaving this topic, I would like to make the following remarks. (i) The study of mathematics has been for many persons a most important means of training the mind to separate ideas which are closely associated in experience, and to generalize ideas which are presented to us in experience only in a single determinate form. One important example is the study of non-Euclidean geometry, in which we learn for the first time to break down the association between the notions of equidistance and non-intersection in the case of two co-planar straight lines, by seeing that there are internally consistent systems of geometry in which the latter property occurs without the former. Another very important example is the generalization of the sense-given three-dimensional spatial order to the notion of a manifold of any number of dimensions.

Perhaps the most valuable general notion or method which has been introduced into philosophy in the last fifty years is that of logical constructions. Two of the most exciting applications of this have been Whitehead's attempt to treat points and instants as logical constructions out of suitably inter-related volumes and durations respectively ; and Russell's attempt to treat both minds and physical objects as logical constructions, on characteristically different principles, out of a common matrix of sensibilia and images. Now it is no accident that both these contributions have been made by philosophers who are distinguished mathematicians. For the notion of a logical construction first arose and had its first successful applications within pure mathematics, *e.g.*, in the definition of irrational numbers as certain classes of suitably inter-related rationals. I think it is very doubtful whether anyone who had not been familiarized with the use of logical constructions in mathematics, and had not been persuaded of their validity and illuminating power within that region, would ever have thought of generalizing the method and applying it to philosophical problems or could have handled it successfully if he had tried.

(ii) Certain important regions of fact fall into a hierarchy of which the following series is typical : ostensibly inorganic matter ; living but ostensibly inanimate organisms (vegetables) ; sensitive and conative but ostensibly non-rational living things (animals other than man) ; and sensitive, conative, rational living beings (men). Any individual at any level in such a hierarchy has all the properties which are characteristic of the lower levels, and has also something ostensibly new and different. But the latter property is not just added to the former. It requires them in order to function, and they in turn are modified by its presence. Moreover, there are ambiguous cases at the margin of each level in the hierarchy ; *e.g.*, filter-passing viruses, organisms which one hesitates whether to class as plants or as animals, and non-human animals which seem to show traces of rational behaviour.

Now the speculative philosopher naturally wants to unify and synthesize such a hierarchy, and he is often tempted to do it in one or other of two opposite ways. These might be called respectively *Reduction* and *Sublimation*. The reductive type of unification tries to show that the features which are characteristic of the higher levels are analyzable without remainder into those which belong to the lower levels. Just the same laws hold throughout, but we have different and more special collocations of the same elements at the higher levels ; and the occurrence of those special collocations is itself explicable from the laws and collocations characteristic of the lowest level. The sublimative type of unification tries to show that the features which seem to be peculiar to the higher levels are really present in a latent or a specially simplified or a degenerate form at the lower levels. It may even try to show that features which seem to be typical of the lowest levels are partially misleading appearances of features which are typical of the highest levels. Materialism, in its non-emergent forms, and Leibniz's form of mentalism, are extreme cases respectively of the reductive and the sublimative types of unification.

The attraction of the reductive type is that the features

of the lower levels seem to be extremely stable and pervasive, both in space and time, and to be subject to laws which are easy to formulate and to handle mathematically. The features of the higher levels, on the other hand, seem to belong only to very complex individuals which can exist only under very special conditions. These conditions seem to be fulfilled only occasionally and for comparatively short periods, and then only in comparatively small regions of space. And they seem to be unstable and essentially evanescent. The attraction of the sublimative type of unification lies partly in the fact that all value and disvalue of every kind seems to reside in the higher levels. And it lies partly in the fact that the reductive type of synthesis seems inconsistent with the knowledge which men have acquired about themselves, about external nature, and about pure mathematics and logic, and with the very great control which they have gained over nature by deliberately applying that knowledge. The danger of each type is the same, viz., to ignore or to distort those aspects of reality which are not easily reduced or sublimed, as the case may be ; or to make the synthesizing principle so thin and so nearly tautological that it fits everything at the cost of illuminating nothing.

How are Proposed Principles of Synthesis Recommended ?—

The last question which I shall discuss is this. How does a philosopher persuade himself and try to persuade others to accept the kind of synthesis which he proposes ?

In former times the method was often, ostensibly at any rate, deductive. Certain very general premises were accepted by a philosopher as self-evident synthetic propositions. He either assumed that other persons would find them self-evident at once, or, if not, he tried to remove confusions and misunderstandings and to place his readers in a position in which they could contemplate these premises for themselves. He hoped and expected that they too would find them self-evident.

In recent times speculative philosophers have more and more tended to abandon this method. When one reads

Whitehead's *Process and Reality* or Alexander's *Space, Time, and Deity*, e.g., one is inclined to feel that the method may be summed up in the familiar sentence : " I'm not *arguing*, I'm just *telling* you." Each reader has to alternate repeatedly between taking a detailed view of the various regions of fact severally and a synoptic view of them collectively, and then to judge for himself whether the proposed scheme of synthesis unifies and illuminates the whole without omitting or distorting any important features in the parts. He may find that, in the light of the proposed scheme of synthesis, all the bits of the jig-saw puzzle fit together so satisfactorily that he cannot doubt the substantial soundness of the suggestion and cannot seriously contemplate any alternative scheme. He may find the whole thing a mass of tiresome and pretentious verbiage which merely darkens council. Or he may find it highly illuminating in places ; but feel that it ignores or distorts certain important features, which some alternative scheme of synthesis, though equally imperfect as a whole, does justice to and illuminates.

It is plain that such total reactions, like our judgments on a person's character or on the expediency of a policy of action, are greatly at the mercy of subjective conditions, such as temperament ; intellectual, social, and racial background ; and even liking or disliking for an individual, for his style of writing, and the persons or causes with which he is associated. An honest student of philosophy will try, so far as he can, to recognize and allow for sources of irrational bias. He will be especially on his guard when judging types of synthesis to which he is unsympathetic, either because they stir no chord in him or because they or their authors or their advocates are distasteful to him on personal, political, or racial grounds. But in the end he will have to recognize that certain types of philosophical theory are, as the vulgar would say, " not his cup of tea " ; and that he will be wise to confine himself to those systems which he can sample, if not without an occasional grimace, yet without a constant feeling of nausea. He should remember, however, that an occasional dose of philosophic

emetic or aperient may be wholesome, even though a regular diet of it is inadvisable.

Of systems of speculative philosophy which are, at any rate at first sight, predominantly deductive, Spinoza's *Ethics* may be cited as a classical example and McTaggart's *Nature of Existence* as a modern one. Hegel's *Logic* must also be included under this head, with the proviso that here the mode of deduction, by thesis, antithesis, and synthesis, is highly peculiar and would not generally be admitted to be valid. Leaving it out of account for that reason, I will conclude with two remarks on straightforward deductive systems.

(1) I am sure that the early and extraordinarily successful systematization of geometry by Euclid must be largely responsible for encouraging speculative philosophers to throw their systems into deductive form. It showed them by a brilliant example that very far-reaching and quite unexpected consequences can be deduced step by step from a few simple and almost trivial premises. Like everyone else, they took for granted that the axioms of Euclidean geometry are necessary synthetic propositions about the spatial properties of the actual world. They were thus encouraged to think that there might be self-evident synthetic propositions about other aspects of reality, or even about every possible existent as such, and that from these a whole system of far-reaching and quite unexpected consequences might be deduced.

Now the progress of mathematics and of philosophical reflexion upon it has convinced most competent persons that the axioms of Euclidean geometry are not necessary synthetic propositions about the spatial properties of the actual world. Either they are taken simply as hypotheses, or they are taken as true descriptions of the spatial characteristics of reality. On the former alternative the consequences that follow them are only entertained conditionally and are not asserted categorically. On the latter alternative they are empirically grounded generalizations ; and the consequences which they entail, though they can be asserted categorically, have the same contingency as the premises.

Thus the procedure which the example of Euclidean geometry encouraged philosophers to adopt, and the hopes which its spectacular success aroused in them, were based on serious though very natural misunderstandings. It does not follow that a system of deductive metaphysics might not be constructed, as simple in its premises, as rigid in its reasoning, and as startling in its conclusions as Euclidean geometry, provided only that it was content to admit that the evidence for its premises is empirical and that its conclusions are contingent. All that one can say is that the omens seem very unfavourable.

(2) In conclusion, I want to point out and illustrate a certain peculiarity which I seem to find in many important deductive systems of speculative philosophy. It is this. The philosopher takes note of a certain characteristic, *e.g.*, extension or temporality, which seems to be very fundamental and pervasive. He reflects on it and its analysis and its implications. He thinks he can show that certain aspects of it or certain consequences of it conflict either with each other or with one or more general principles which he finds self-evident. He concludes, therefore, that this characteristic cannot *really* belong to anything. But he is left with the fact that it appears *prima facie* to be a fundamental and pervasive feature of reality, and that it continues to do so to himself and to others who accept his destructive criticism of it. He has now to "save the appearances." In order to do this he introduces an hypothesis, which may have no trace of self-evidence and may not be directly deducible from anything that he finds self-evident or regards as empirically established. He asks us to accept this hypothesis on the ground that it would save these appearances, that he cannot think of any alternative which would do so, and that he would be much surprised if anyone else could think of one. He then takes this hypothesis as an additional premise, and from it alone or in combination with the other premises of the system he deduces further consequences which are often very startling. These consequences may be among the most characteristic doctrines of his philosophy.

This procedure is very well illustrated in Leibniz's system, and I will take that as an example, though it would be quite easy to find others. In Leibniz's monadology there are at least two instances of it. (i) There seems *prima facie* to be a plurality of substances which interact with each other. Leibniz thought he could show that interaction between substances would be incompatible with certain properties which are involved in the very nature of a substance. His main reason for this was that he thought that it followed from the analysis of subject-predicate propositions. On the other hand, he saw no reason to doubt, and strong reasons for accepting, the existence of a plurality of substances. He had therefore to account for the fact that the numerous substances which there really are seem to interact with each other, which they really cannot do. He introduced the hypothesis of Pre-established Harmony in order to "save the appearances." It is to be accepted, not because it is self-evident or even particularly plausible, nor because it follows directly from anything else which he accepts ; but simply and solely because it, and nothing else that he can think of, accounts for the delusive appearance of interaction. It then becomes an additional premise, from which further consequences follow.

(ii) We perceive many objects as extended. Leibniz thought it self-evident that, if anything were extended, it would be composed of adjoined extended parts. Since each part is extended, the same must be true of it. Therefore, if anything were extended, it would be composed of parts within parts within parts . . . without end. Leibniz rejected this consequence as self-evidently impossible, and he was therefore forced to conclude that nothing is or could be extended. So he has to account for the partially delusive appearance of extension. Now he had no objection to *infinity* as such ; what he objected to was absence of *simple* parts. He therefore suggested that what appears to be an extended substance is in fact an aggregate of an infinite number of simple unextended substances, answering to the following conditions. Each of them has a different determinate form of a certain one determinable quality, which he calls "point of view."

There is an infinite number of determinate possible points of view, and they form a continuous three-dimensional manifold. The infinitely numerous simple substances, which together appear as a single finite continuous extended object, between them have all the possible points of view which fall within a certain limited region of this continuous three-dimensional manifold. That is why the object appears to us to be finite in extent, but continuous and divisible into parts within parts without end, although in fact nothing could possibly have the latter property.

Now I know of nothing in principle against the general method of argument which I have been illustrating. It might lead to results which were accepted by all competent persons, which were illuminating and far-reaching, and which could not be proved in any other way. But in fact it has not hitherto done so. Experts have not universally accepted the negative destructive part of such arguments. Those who have done so have not always been persuaded that the proposed hypothesis saves the appearances. And those who admit this much have not always been prepared to admit that no other hypothesis would save them.
