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Modern Problems in Philosophy

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MODERN PROBLEMS IN PHILOSOPHY

I

INTRODUCTION

IT is written, I believe, in the *Koran* that every age hath its own revelation; and whatever we may think of the source of this statement, the statement itself has at least as much soundness as is reasonably to be expected from an aphorism. As in other things, so in philosophy. Certainly, it would be imprudent to arrogate any signal virtue to ourselves on the simple-minded ground that our theories are up to date. Mid-Georgian opinions need not really be better than early Georgian—or late Jacobean—and we do not say anything *very* severe if we say that such and such a view is out of line with modern thought. Nevertheless, if we cannot re-act sympathetically to the climate of contemporary speculation, we show ourselves deficient in several of the more important human and social qualities, and it is irrelevant to opine sagely that philosophies, like jokes, are seldom completely new. It is the perspective that matters; and to speak in archaic accents is often as good as not to speak at all.

Beyond reasonable doubt the most striking characteristic of contemporary philosophy is the change in its

attitude towards science. This change is the resumption of an alliance that should never have been broken. Long ago among the Greeks, philosophy (or the love of wisdom) meant pretty much what we now mean by liberal culture, with the single difference, perhaps, that the Greeks found intellectual curiosity more stimulating and of greater moral potency than we do. For the Greeks, therefore, geometry and the principles of politics, grammar and elementary logic, the incommensurability of certain lines or numbers and the division of the virtues, the reliability of the senses, the origin and the unity of things, the sufficiency of pleasure as the *summum bonum*, were all of them subjects of rational inquiry (or philosophy) and approximately in the same sense. What is more, any one philosopher could give his mind to all of them together.

As late as the eighteenth century it was possible, although it became increasingly difficult, for a man of eminent (or pre-eminent) ability not only to be acquainted with most that was worth knowing in the learned world, but to make effective contribution, *from the inside*, to the best science as well as to the best philosophy. Thus Descartes and Leibnitz were the foremost scientists as well as the foremost philosophers of a very great age, although Newton was not a great philosopher and Locke was so little of a mathematician that, according to a probable anecdote, he asked Huygens if the mathematical deductions in Newton's *Principia* were correct, and being told that they were, took them as read and busied himself with the interpretation of their results.

Even the giants of later times, however, were unable in this way to combine first-rate original work

in the sciences with first-rate original work in philosophy. It would not be true to say that Kant, Hegel or Comte were laymen in the sciences; but their scientific attainments were respectable rather than eminent. In short, a *professional* division made itself felt in a way that was unknown in earlier times, so that, through nobody's fault and from nobody's active desire, philosophers came to specialize on generalities and scientists on relatively particular departments of fact.

Indeed, at the close of last century (and to some extent at the beginning of this one) we found philosophy, science and religion occupying different camps; the two latter, perhaps, coming to some sort of understanding because of the realities of definite conflict, but the first very aloof from both of the others—at least in the general estimate.

When Leibnitz, more than two centuries ago, thought the theology of his *Theodicy* as important as his work on the Calculus, and the philosophy of his *Monadology* as important as either, what lesser spirit among his contemporaries was likely to gainsay him? In the opinion of his age, any sensible man could see that a synthesis of religions (now that Catholics and Protestants had become calmer than formerly), the sharpening of the tools of scientific discovery, and an attempt to take stock of the nature of things, were—all of them—big questions that hung together in an important way and ought to be attacked conjointly by the biggest minds.

When, on the other hand, science tended to become *mere* science, impervious to metaphysics, and impervious also to religion, unless the scientist happened to be devout in his private capacity after he had left his laboratory; when religion, clinging desperately to an abandoned

"science" that seemed congruent with the minds of the writers of Scripture, and also afraid of philosophy, assumed a merely defensive attitude; and when philosophy, standing apart from the sciences and sceptical about dogmatic theology, was anxious to assert its place, if not in the sun, at any rate somewhere; it is not surprising that each of the three should have gone its own solitary unsympathetic way.

In effect, the philosophers of our fathers' times, and of times a little earlier, conceived that they had to fight, and to fight very hard, in defence of the *existence* of a point of view that was valid whatever their contemporaries might think, and especially for the reality of ideals which science neglected because they were foreign to its manifest province, and religion asserted in a fashion which seemed to be clogged and encumbered with much that was unnecessarily mysterious or frankly a thing of superstition. In the result, contrary to their wishes and true intent, those philosophers gave something more than an excuse for the prevalent opinion that philosophy had committed itself to a road quite different from all other roads, or even that it pursued a marsh-light that other disciplines could not so much as discern. The arrogance of science, and the intransigence of militant religion, left the philosophers a very slender alternative.

It is otherwise to-day. Science and religion seem to have kissed one another, and scientists (like Huxley towards the close of his life) have been heard to murmur, although before the autumn of 1927, that they may be in danger of anathema because they have not gone far enough. And science is disposed to collaborate with philosophy. To be sure, it is even less possible now

than it was a generation ago for any one man to excel in all the known branches of rational inquiry. This important aspect of the affair, however, is more than counterbalanced by others.

In the first place, the super-specialism of modern science has begun to clamour for its proper antidote. To change the metaphor: when a man is pent in a small portion of a trench, he is apt to be filled with an intense longing for an idea at least of the way the whole campaign is going; and in principle the whole campaign, in this instance, obviously should not be limited to the terrain which in fact is occupied by an arbitrary group of particular sciences.

Secondly, and perhaps more importantly, the developed sciences, in proportion as their principles become critically purer, tend of their own motion to become more general, more speculative and less dogmatic. The most striking example of this is contemporary physics; and when Dr. Whitehead tells us in his "Science and the Modern World," that in his view, philosophy is "the most effective of all the intellectual pursuits"[1] because in principle it is the strategist while the sciences are the tacticians, he is saying from the inside what most of us are inclined to suspect from the outside.

And thirdly, what we may call the intermediate sciences (like biology) help the work by being of necessity a meeting place for the most varied ideas. The naturalist, loving bird and beast and seeking to explain them, looks eagerly for analogies in such varied quarters as physical patterns on the one hand and the psychology of emotional instinct (perhaps even the rudiments of æsthetics among the birds) on the other.

[1] Preface, p. x.

The recent revival of militancy, obscurantism and, one must add, dubious theology within the Church of England, does not, I think, affect the truth of this statement, although it may indicate that largish numbers of Englishmen are not at all "modern" in their ideas.

In any case, the alliance is struck, and if there are dangers in being too comfortably amicable (especially if philosophy, borrowing a part of the prestige of the sciences, is also content to follow them) the immediate task for men of goodwill is to welcome the amity—and to proceed. How far we may proceed is quite another question. A philosophy in appearance consolidated usually comes "after the fair," and at present we have a great hurly-burly around us in these matters since all the sciences have proclaimed that a revolution is in progress. Consequently, our age is an age of problems rather than an age of *soi-disant* solutions, and it is none the worse for that. If we all felt, as the late Dr. Ward said in one of his letters, that a "faith in the light to come" is the one effective stimulus for a modern inquirer, we should probably be the wiser for our caution —provided, that is, that we implement the faith by the onerous work of hard and continuous pondering.

In the pages that follow I shall try to indicate some of the principal problems of a philosophical kind that obtrude themselves in the discussions of the present time, and shall group these problems under the headlines of Nature, Life, Mind and Values. The grouping is rough, but it may serve; and if the times are not wholly propitious for giving a rapid *vue d'ensemble*, they are less unpropitious than they might be.

II

THE PHILOSOPHY OF NATURE

AMONG the many ambiguities in the current use of the word "nature," not the least mischievous is the one with which we are now concerned. To speak of nature as being "closed" to minds or "indifferent" to values is ultimately most unnatural, reminding one of the Scots idiom, according to which, a "natural" is one who has never been able to find his wits. Whatever our theory of mind may be, it is at least according to the order of nature that human beings should have minds; and on any theory of values, certain natural objects have valuable properties. Anyone who supposes these facts to be supernatural is robbing nature of one of her plainest possessions. What, in this sense, is added to nature is something which, in another sense, nature makes.

Accordingly, in this part of our discussion, I wish to assume neither that nature is "closed" to minds and to values nor that "nature," thus bereft, is the *fons et origo* of everything else that may be found. I wish quite simply to neglect minds and values for the time being; and since animate nature offers rather special problems, I intend at the outset to neglect biological problems also. Under these limitations it is advisable to divide the discussion into two parts, viz. the facts of "nature," and the evidence of the senses on which this natural knowledge depends.

(*a*) Space-time and Matter

While the present, as we have seen, is pre-eminently a time of crisis and professed revolution in many scientific domains, few of our debates concerning modern problems can be so bold or reach so far as contemporary discussions concerning the foundations of physics; and few can make a greater difference to our *Weltanschauung*, or world view. To hold that the philosophy of our age can remain unaffected by the discoveries of Planck or of Einstein would be just as absurd as to maintain that the philosophy of the sixteenth century should have left Copernicus unheeded, or that Darwin in the nineteenth had nothing to teach philosophers.

On the contrary, just because philosophy is affected, we have the strenuous privilege to-day of *re*-thinking and, if necessary, of *un*-thinking much that seemed of unquestioned authority. The rising generation, to whom this task should be simpler, have the further responsibility of advancing more swiftly and surely than their elders are likely to do.

One's *Weltanschauung*, to be sure, need not be a philosophy in any proper sense, for the term may be taken to mean something merely impressionistic, a vague attitude and hazy adjustment towards the sum of things, or the massive impact of a man's environment upon him (including his intellectual and traditional environment as well as his physical). Philosophy, on the other hand, has to deal with articulate principle, and at the moment there may well be an uncomfortable amount of truth in the reflection that in a time of furious scientific excitement (like the present) it is peculiarly difficult to distinguish kite-flying from sustained

scientific achievement; or, among the new achievements, to be satisfied that even the theory of relativity, to say nothing of the quantum theory, has definitely conquered the older views.

Even granting, however, that it is difficult at the moment to reconcile relativity with quantum theory, everyone must be *prepared* to find these theories immensely more probable than any known competitors, and so should adjust himself in advance to their fundamental implications. A serious and reflective adjustment of this order is the quintessence of philosophy. Consequently, since space-time and matter are admitted on all hands to be fundamental, there could scarcely be a greater or a more pressing need for philosophy than there is on these themes to-day.

As everyone knows, the theory of relativity is a stupendous scientific achievement in which resolute imagination combines with a subtle technique and the most scrupulous attention to very small experimental quantities. *De minimis curat scientia.* In the result the greatest edifice of human science—the Newtonian world scheme—while confirmed over the far-flung territory it had already conquered, is corrected when light is "caught bending" during a solar eclipse as well as in other points of relatively minute detail, and at the same time is reinterpreted as a whole.

This reinterpretation is philosophy's special concern, and its principal components are (1) the change from space *and* time to space-time and (2) the thoroughgoing substitution of relative for absolute motion. The second of these changes is stated by Mr. Russell in his "Analysis of Matter" [1] to supply for the first time a

[1] Pp. 17–18.

final refutation of the theory of absolute space, a topic which has always been prominent in philosophical discussions. Since, however, there has been a persistent conflict between absolutist and relativist theories on this question for at least two centuries, the novelty of principle (as distinguished from the novelty of technique) in this second part of the theory of relativity is of smaller philosophical importance than the overwhelming originality of the first part. Consequently, it is the blending of space and time into space-time that must occupy our attention here.

Roughly speaking Newtonian philosophers (like plain men up to the present) regarded space as a sort of box in three dimensions, and supposed that bits of matter moved about in the box. Certainly there was a crucial difficulty in deciding how we could know that any piece of matter at any given time occupied a determinate place in the box; for our spatial frame of reference is always the stars or the earth or some portion of the earth's surface, and unless we know the position, e.g. of the stars within the box, we are hardly in a position to answer the question. Despite these difficulties, it seemed manifest in any case that time is totally distinct from space and theoretically independent of it. Time had to be mentioned, of course, in assigning a body's position. For bodies move. But this necessity for the description of motion was not supposed to annul or even to modify the fundamental disparity and the complete natural independence of the time and space orders.

The new theory is quite precisely opposed to this, since the heart of it is that time and space are not independent at all. They are not, indeed, *identified* (for

something time-like and something different which is space-like must appear in every frame of reference), but they are now held to be *interdependent* instead of being naturally distinct.

Thus, to adapt an illustration of Mr. Broad's,[1] everyone can see that if I solve a cross-word puzzle in a moving train, I begin and end the process in the same place (i.e. compartment) in the train, but not at the same place on the earth's surface (for I may begin at Beattock and end at Preston). Part of the novelty in the theory of relativity is its resolute maintenance of the idea that the same principle must be applied to time. Travellers in different compartments of the same moving train who, according to their watches, begin their puzzles at the same moment, do not begin at precisely the same moment according to the clocks at the stations. In this affair of British trains, to be sure, these differences are too minute to be detected, but, small as they are, they should be, and are, detected in celestial motions.

If these considerations applied only to clocks, light-signals and the heavenly bodies regarded as the *measurers* of time, it is probable that the changes implied in the new theory are less radical than otherwise we might hastily suppose. Let us put the issue as follows. If I am eating a sandwich on a speedy aeroplane, or eating one at the butts on a moor, I commonly suppose that the motion of the aeroplane, or the motion of the moor relatively to the sun, has nothing whatever to do with the order of the time-facts in my consumption of the sandwich. Whether I am in motion or not, I know that the sandwich was outside my body before I began to eat it, inside after I had finished, and I seem to

[1] "Scientific Thought," pp. 148–149.

myself to be conscious of a perfectly definite and utterly unambiguous order of succession in the period between these events.

Suppose now, that I am told that observers in Saturn, in Jupiter and in other distant places would not agree with me in these time-judgments according to any practicable arrangement of clocks and of light-signals —in other words, that these temporal judgments of mine are not absolute, but that they must be correlated with distance, so that my statement about this succession of events requires a qualification to make it true, much as the statement "the roof is above our heads" requires the explanation that "above" means farther from the centre of the earth.

I might argue then that in the neighbourhood of my body there can be no difference *to me*, but if I did so I should be forgetting that this "neighbourhood" has no proper meaning until it is specified relatively to some frame of reference. In short, I should have to abandon the idea that, even for me and my experience, *any* piece of time-sequence is absolute *unless* I can somehow convince myself that the theory of relativity is *only* a way of bringing order into our *measurements* of time. Regarding the latter opinion, common sense is already quite sufficiently puzzled and need not be greatly disturbed. Regarding the former, it is difficult to see how there could be a greater revolution in our ordinary notions or in what seem to be the fundamental simplicities of thought. Yet it is the latter not the former interpretation that this merging of space and time into space-time properly implies. The new theory is that *no* piece of time-sequence is absolute.

However startling these radically novel theories may

appear, it is claimed that they enable us, in reality, to come much closer to nature (as our senses apprehend her) than the older theories did. We cannot, indeed, say with Berkeley that "the same principles which at first view lead to scepticism, pursued to a certain point bring men back to common sense,"[1] for common sense (i.e. the general uninstructed opinion) is a miserable sinner, repeating at *n*th hand the prejudices of "accepted" thought.

What we *can* say, however, is something like this. The sciences, proceeding from current notions without any more strenuous attempt at criticism than their immediate purposes demanded, arrived, until recently, at a world-scheme remarkably and perhaps intolerably different from what Hamlet would have called the "sensible avouch of his own eyes;" and this tradition had become so firmly rooted that only a few so much as protested against the yawning chasm between scientific superstructures and the observations on which they were built. Of course, if it must be so, it must be so. We need not expect nature to yield her secrets, by preference, to little children. Yet it was at least worth the asking whether the structures of the sciences had not become top-heavy, and whether a greater scrupulousness concerning the distinction between fact and inference at the beginning might not leave more fact and less fiction at the end. (Fictions *may* be inevitable, and, if they are only devices, need not be false; but they should be sparingly employed.)

Thus, at the very beginning, the "points" and "instants" of geometry and physics raised questions of outstanding difficulty—for we observe and argue from

[1] "Dialogues between Hylas and Philonous," conclusion.

areas, volumes and time-like lapses, so that indivisible points and instants seem to be pretty definitely beyond our ken. If this meant only that mathematical points and instants could not be seen or handled, the circumstance need not matter very much. There would be largish *minima* for vision or touch; and the intellect, analytically, might divine their punctual structure.

Yet the question remains whether there *are* such entities for the intellect to divine. If points, for example, are defined (in the usual way) as the limits of converging series, the problem remains whether these series *have* these limits, and the great merit of the modern method of extensive abstraction (according to which it is possible to define them, not as the limits of such series, but, in a certain carefully explained sense, as the series themselves) is that it is a device which enables us to hug the facts instead of a device which leads steeply away from the facts. Undoubtedly, there are *volumes*, and the volumes of which we have experience plainly contain volumes. The important question is therefore whether the new definitions of punctuality yield the properties that geometers and physicists require of their points, and Dr. Whitehead, to the satisfaction of competent persons, has shown that they do. (Similar definitions can be devised for the instants of time and for the point-instants of space-time.)

It is even claimed that procedure along these lines reconciles the atomicity of the universe with its integrity as a single whole, or in other words, shows pluralism and monism to be complementary, not antagonistic. For the purposes of this tiny essay, however, it would seem expedient merely to keep these general considerations generally in mind, and to consider more specially

their relevance to the problem of the relations between sensible and imputed continuity.

In our waking experience what we usually call time seems to have no gaps in it, although its *tempo* is in some respects capricious and irregular. The gaps occur when we are nodding or asleep, and everyone, without the least hesitation, *imputes* continuity (of time) to his environment whether or not he happens to be taking notice of it. Our houses, we say, stand ready for our return when we go on a journey, even if caretakers, policemen and burglars have not always been keeping an eye on them. We never suppose that they jump in and out of existence like the houses of a dream.

In short, what most people mean by a substance is primarily a continuant. Similarly, with what we usually call space. Even if an interruption in our spatial perceptions can be demonstrated (as with the cricketer's blind-spot) we do not notice any gap, and we *impute* this spatial continuity far beyond the limits of our senses —beyond the horizon when we are sailing on a wide sea; beyond the Milky Way when we gaze at the vault of the heavens. This applies to senses other than touch. When we see the summit of the peak of Teneriffe floating, as it were, above the clouds, we are confident that there is a continuous although invisible slope which we might tramp with our feet if we chose to make the ascent.

Nevertheless, it is *possible* that this attribute of continuity which, for the most part, seems so plain to the senses and otherwise is imputed so very freely, is, after all, something of a cheat. The cinematograph shows that events which seem continuous may, in fact, be jerky. Colours which seem to be steady may be

the effect of rapid vibration. Consequently, ultimate or metaphysical continuity is a thing to be thought over, and modern physics is keenly alive to the circumstance.

If the quantum theory could be accepted, certain ultimate discontinuities (however regular and predictable) would belong to the pattern of nature, and we must therefore be prepared to incorporate this possibility in our world-view. In Planck's study of black-body radiation, in the photo-electric effect, in the specific heat of solids at low temperatures in Bohr's explanation of the line spectra of elements, it appears, as something ultimate, that an electron jumps regularly but discontinuously from one definite orbit to another definite but quite different orbit; [1] and unless it can be shown that these discontinuities are, let us say, sharp maxima and minima of certain spinnings among electrons, it would seem that "change without interval" must have the same position in modern physics as "action at a distance" had in the old.

And so we come to "matter." The time-honoured view of matter is that of something solid, enduring and indeed indestructible which occupies some portion of space at some given time and causally affects other pieces of matter in other places. Billiard balls were supposed to exemplify it very well; and atoms before the days of their analysis into protons and electrons might be regarded as miniature billiard balls. It is true that fluids and gases were also supposed to be material, and consequently that these pictorial representations were more than a little misleading. Still, the fact of

[1] Technically we have to deal with unity of *action*, i.e., of force and space and time.

occupying space or of "impenetrability" (in the old phrase) was at least essential—even if the phrase applied to melted butter in the same sense as to butter frozen solid.

Except on some theory of absolute space it is hard to see how this notion could survive; and even on that hypothesis an accommodating "ether," patiently accepting all the gifts that physicists gave it when they were at a loss for any other receptacle, was usually supposed to pervade this "empty" space. If space, however, must be merged in space-time, it is impossible to regard it either as an empty box or as an ethereal receptacle. Space-time is like the connectedness of motions or tensions; not a theatre in which matter is in motion, but rules and modes of expressing certain fundamental orders and relationships within a universe of mobile events. The extreme conventionality of "mass" in traditional physics (for mass in strictness is a number) aids rather than impedes this change of conception.

In short, "events" tend to supersede "substances" in the modern theory of nature, and "matter" is apt to be regarded as a clustering or family of events which indicates certain relatively persistent habits, selections and potencies among these events. It is a moot point, even, whether protons or electrons should, as a matter of scientific policy, be regarded as indestructible. Mr. Eddington suggests that they need not be.[1] In any case there is nothing sacrosanct in such notions when they are interpreted in the modern way.

As with substance, so with cause. The "force" or "efficacy" which the plain man attributes to "causes" when he thinks of pushing or pulling, and of the

[1] *Nature*, May 1, 1926, Supplement.

difference between kicking and being kicked had already lost most of its meaning in the classical physics of force and still more in the classical accounts of energy. Many philosophers, therefore, had openly discarded the notion, speaking of "causal laws" instead of causes, and meaning by "causal laws" selective uniformities of sequence. It is not surprising, therefore, that philosophies based on the newer physics should elect to travel on this road without ever casting a glance behind, or that, in their opinion, the "conservation of energy," however important in limited fields, should, in an ultimate or metaphysical regard, go the same way as the alleged indestructibility of matter. In a word, the old simplicities have softened, and in the result greater freedom is claimed.

A word, finally, concerning the one and the many. For those who lay emphasis upon the systematic wholeness of nature it is still permissible to maintain that logically the whole comes first, and that "substantial" particular things together with their specific causal connections must be regarded in principle as modifications within this totality. All things by a law divine in one another's being, mingle, precisely because "things" are but relative singularities within the whole. On the other hand, a radical particularism may also be defended as in the half-whimsical "postal" theory recently suggested by Mr. Russell, according to which nature consists of ultimate (although not of everlasting) particulars which are able, nevertheless, to send parcels of themselves to determinate addresses and also to receive parcels addressed to themselves. As we have seen, however, the difference between pluralism and monism tends, in these modern views, to wear very thin.

(*b*) The Theory of Perception

One thing that is clear in the foregoing narrative is that a large part of the advance in modern physics is due to a greater scrupulousness than formerly in examining with the nicest precision what scientific evidence actually shows us. In the natural sciences this evidence is ultimately an induction from careful observation through the senses. However delicate our instruments are, in the end we have to *read* them.

While the analysis of induction in modern accounts of scientific method is perhaps in a condition not altogether healthy, the analysis of perception through the senses and of the testimony it may reasonably be supposed to give, has been undertaken with microscopic thoroughness. Thus, every philosopher nowadays has important hints to guide him when he asks a question that at some time he is bound to ask—the question namely: what we can infer concerning nature from the way in which our knowledge of natural events occurs. As this question has been a major issue in British philosophy at least since the days of Berkeley, there is something not altogether inappropriate in our modern preoccupation with it.

Berkeley thought the answer peculiarly certain and obvious, although he complained that many, having raised a dust, were amazed that they could not see. According to him it was manifest to anyone's simple inspection that all perceived events, all sounds that we hear, all shapes and colours that we see, must be mental things, and that there was no intelligible meaning of any kind in supposing that there could be a non-mental universe *like* these mental things.

Suppose the warmth of a fire stealing pleasantly, as we say, through a man's members, and suppose the fire to become so hot that it is painful. Turn the circumstance as you will (Berkeley would say) and you cannot find any significant reason for maintaining that the heat and the pain are in any way different in respect of being mental or non-mental. Again, suppose the castle of a vivid dream—let us say Kublai Khan's pleasure-dome. Examine it tier by tier and you will find in it precisely the same sort of constituents as you find in Fontainebleau or in the Alhambra. You have always to do with feelings, and feelings are mental.

Put in this way, Berkeley's argument yields a species of idealism concerning nature, and directly or indirectly, it dominated the trend both of popular and of technical philosophy until comparatively recent times. I do not say that all idealists saw eye to eye with Berkeley, for many of them expressly repudiated this alliance. But they agreed pretty nearly; and the semi-idealists who called themselves agnostics, while professing to believe in some further non-mental reality, could only say of it (in detail), *Ignoramus, ignorabimus*. At the beginning of the present century, however, a change appeared, and "realism" in these matters became much more respectable than it had been for a very long time.

The essential thesis of modern realism may be put by saying that if and so far as anything is known, *it* is known; or, in other words, that there is *no* difference between a thing and a "thing as known" except in so far as the knowledge may be incomplete—and further, that a knowledge which is incomplete in the sense that it falls short of omniscience may nevertheless be literally and unmodifiably true so far as it extends. Assuming

that the principle of this contention is sound (and I think it has more than held its own during a prolonged debate), the question arises, whether nature, as she appears to reveal herself *to our senses*, may literally be "known" in this realistic way.

Common language, and perhaps common sense, appear to affirm that our senses reveal nature herself in a form which plainly goes beyond anything that sensory testimony directly yields; for when we say that we see a hat or a shoe, we speak as if we and a host of other people could literally see the same enduring thing. In fact, however, the most that anyone could *see* would be a series of transient glimpses of what we call the shoe's surface, and it seems abundantly evident that different people have seldom (if ever) precisely and numerically the same visual apparitions before their eyes. The shoe that we say we see is not precisely the same apparition to colour-blind and to normal persons, to persons short-sighted in different degrees, to young eyes and to old, to persons near the shoe or farther away, to the right of it or to the left, in sunshine and in twilight.

Accordingly, we have to conclude either that nature literally and directly includes all these apparitions—or that she does not. The importance of modern work upon this subject lies in the fact that both alternatives have been very thoroughly explored.

If we choose the former alternative we are at odds with ordinary language. Keeping to the stock example, we say that a florin *is* round, although from the side it *looks* elliptical; but if nature (particularized in the florin) includes all these apparitions, then the florin, instead of having only one shape, is a family of shapes, although,

of course, a different family from the collection of elliptical shapes which we call an egg.

This theory seems consistent and not at all impossible. If the florin, at any time, has all the shapes that all possible percipients could see, touch, and so forth, the proper conclusion would be that common language over-simplifies this affair, and speaks of *the* shape of the florin when it ought to speak of the most prominent member of the family. Since current language has a way of speaking in an abbreviated, slap-dash fashion, there is, so far, no considerable objection to the theory; and if the space of nature, thus interpreted, seems rather more untidy than common language supposes, we have to remember, here as always, that the old simplicities are generally thought to have disappeared in any case.

Plainly this interpretation chimes in very well with the general conception that nature consists of events. For sense-apparitions *are* events, and the theory has the considerable advantages (1) of retaining without any drastic transformation the evidence from the senses upon which all our knowledge of nature rests, and (2) of being able to make the highly satisfactory statement that an important part of the reason why we see, say a colour, is that there really is a colour to be seen.

The theory states, in a word, that our senses are selective, and that what they select are literally parts and features of nature herself.

On the other hand it must be confessed that if the theory is true we ought to conclude that what a horse sees or what a fly sees are literally parts of nature just as much as what a man sees; and if the man is jaundiced or drunk or perplexed by a mirror, so that he has, as we

say, delusive or pathological sense-apparitions, it may still be doubted whether we have any logical justification (on the theory) for excluding these from nature. While the number and variety of the parts of nature, according to this theory, is not really an objection to the theory, the character of some of the apparitions may well be supposed to be, and although difficulties of this kind only become insurmountable if we suppose the senses to be not only capable of accuracy but actually infallible, we cannot pretend that the selection theory always sails easily upon an even keel.

The second alternative, in the form stated above (p. 27), is to the effect that it cannot be true that all our sense-apparitions are literally and directly included in nature. So stated, there is, of course, the logical possibility that some of them *are* included, or that some or all may be included in certain assigned respects. Since a comparatively slight modification of the first alternative might enable us, however, to speak in this second way, it seems evident that if the second alternative is effectively opposed to the first, it must either be able to discriminate quite clearly between certain kinds or features of sense apparitions in this respect (i.e. between those that may and those that may not be regarded as literal parts of nature), or else must be prepared to interpret these matters in a totally different way.

In reality, all our sense apparitions, when we argue about them in any serious fashion, are seen to be essentially upon the same footing. Except in some subordinate way, there are no privileged senses which reveal nature precisely as she is while other senses do not; and there are no features of nature directly

perceived, if perception (as regards other features) yields nothing but seeming and show.

To be sure, a particular form of the distinction between "primary" and "secondary" qualities once made this attempt, and declared that spatial and temporal qualities (in the strictest sense) belonged to nature, while qualities additional to pure space or time (such as colour or sweetness) did not pertain to nature but were a sort of gloss which we, in some odd way, put upon her. As our example of the shape of the florin showed, however, it is quite impossible to maintain that the shape of an object is free from the difficulties of variation (and the like) in a way in which colour is not; and the second alternative accordingly, must adopt a much more drastic plan.

It adopts some form of correspondence theory, and would state (reverting to the example of the shoe) that nobody's visual apparitions of the shoe are literally *part* of the shoe, but that these apparitions *correspond* in determinate ways to the physical nature of the shoe.

On this view, the physical shoe *seems* to be perceived; but is not. Its structure, however, corresponds in assignable ways to the character of the shoe-like apparitions, and in particular we can explain the differences in these apparitions by correlating them with differences in the shoe's physical structure together with differences in the physical atmosphere and in those physical things which we call our brains. Since on this theory we *never* perceive any physical thing, and since the evidence for the existence of physical things *at all* is always derived from our sense apparitions, it is plain (according to this view) that *all* these things, physical shoe, physical atmosphere, physical nerves and brain, are, in the end,

hypothetical entities and nothing more; but it is maintained that if this hypothesis explains the facts more and more adequately as our knowledge advances, it becomes more and more probable.

What then of Berkeley's arguments? As we saw, Berkeley maintained, firstly, that all sense apparitions were manifestly mental; and secondly, that it was utterly absurd to suppose that a non-mental structure could be *like* these mental facts. The effect of modern inquiry is seriously to impugn the first of these contentions, and therefore to cast doubt upon the second.

According to the selective theory of perception (which is not impossible in principle), our sense apparitions are literally parts of nature, and need not, in principle, have any other qualities than they appear to have. They are coloured, sonorous, and so forth, but these qualities need not be mental, as Berkeley himself admitted when he argued that our minds are not red although redness could not exist if there were not a mind to see it. According to the correspondence theory, the variations in our sense apparitions when the cause of the variation appears to be in us and not in the things, is amply sufficient to show that our sense apparitions cannot be identical with physical nature. But this, despite Berkeley, does not make them mental. The variations in the shape of the florin, for example, would be shown just as clearly in an ordinary photograph as to our vision. In short, neither of these possible theories is constrained to agree with Berkeley. Thus, if idealism is true—and it is still a possible theory—it must be based upon arguments quite other than his.

The second part of Berkeley's argument loses much (indeed most) of its plausibility if the first part is rendered

doubtful. If sense apparitions are not characteristically mental (and we have seen that they need not be) they *might* correspond in structure with a non-mental nature, and, indeed (as the correspondence theory usually assumes, although it cannot pretend to prove it even as a tested hypothesis), they might be very similar to the physical facts.

It would be otherwise, to be sure, if these apparitions *were* characteristically mental. If, for example, a man's anguish increases steadily as he reads the words on a telegram, there would no doubt be a certain structural correspondence between differences in the words on the telegram and differences in the man's mental state, but there would be no considerable likeness.

Ultimately, therefore, the problem is whether colours and sounds are (like pleasures) *mental* in this sense or whether they are not. The consensus of modern opinion here is against Berkeley; and although modern theory, as I have tried to indicate—although I have not lingered on the point—is still very far from having solved the problems of perception, we have the right to believe that it has done a great deal towards making the issues plainer, and so has enabled the philosophers of the future to begin their day's work under fairer auspices.

III

LIFE

TO pass at a single stride from the conspicuously general and highly analytical problems of the last chapter to the peculiar and very specific behaviour of living organisms on the crust of the earth shows a most unphilosophical precipitance, and is only to be excused by the urgent need for brevity. While it is not unlikely that something life-like might be found pretty generally within the universe, and while it is possible that there are organized living things in some other planets in some other solar systems, biologists have to study certain portions only of a very small region composed of the earth's surface, seas and atmosphere. Except in this restricted environment, with a narrow and stable condition of temperature, moisture and the like, living things of the type that we know could not possibly exist.

If we ask bio-chemists what they think—particularly bio-chemists like Mr. L. J. Henderson[1] who have a speculative bent—we shall be told a story to the following purport.

Of the eighty or more chemical elements, the four "organic" ones, nitrogen, hydrogen, carbon and oxygen (and especially the last three of these) are the only substances capable of the sort of development (more precisely of the freedom to enter into varied combin-

[1] In "The Fitness of the Environment."

ations) that we find in the evolution of living beings. These elements, therefore, are the only ones which are chemically fitted to be the basis of vital substance, but they could not develop along a path even approximately similar to the course of organic evolution, unless their immediate environment was also "fitted" in a marked degree to this highly specialized process.

This reciprocal adaptation between certain combinations of the organic elements and their environment on the earth's surface may be further interpreted as follows. All our evidence points to a very general distribution of the chemical elements throughout the astral system, and the strong probabilities are that our own planet passed through a molten phase, its surface gradually cooling. During the process of cooling, the lighter elements (including the "organic" elements) came to the surface in relatively large quantities, and we have evidence that there has been an atmosphere from the formation of the earth's crust down to the present time. In this atmosphere the chemical elements most important for the existence of life, such as water, carbon dioxide, nitrogen and oxygen, have persisted in the same form of chemical combination as we now find, and at a certain temperature water began to condense.

Water, which is the best of all solvents, dissolves and distributes all the elements and holds masses of them in solution. Its great surface-tension facilitates its retention by the soil, and it is highly favourable to the formation of colloidal systems which are the only organizations in which it seems possible that life should be manifested. Since, however, it is impossible for us to enter here into the fascinating detail of these specu-

lations, we must be content with a glance at some of their principal philosophical implications.

At the moment two problems seem to be at the centre of philosophical interest. These are the philosophy of neo-vitalism and the philosophy of emergent evolution. There is, however, a third and larger problem in the background which will probably take precedence of the others in the speculations that are about to be born.

(1) The theory of neo-vitalism differs notably from old-world vitalism. According to the older theory a special vital substance or vital spark was always necessary to animate the frame of any living thing. The neo-vitalists (including Mr. J. S. Haldane) are satisfied that there is no such substance, since all the matter and all the energy found in a living body can be accounted for in its exchange with the matter and energy of its environment.

Nevertheless, the neo-vitalists are prepared to maintain that the delicate regulations within a living body which sustain its continued existence, its growth and its reproduction, are events which cannot in *principle* have any proper parallel in the rest of nature, and so must be accounted entirely *sui generis*. This contention is supported in detail, say, by Mr. Haldane's researches into breathing and into the secretions of the kidneys, or by Mr. Driesch's experiments with the eggs of the sea-urchin, in which the eggs were dissected and yet produced *whole* organisms of a small size.

The opposing theory is that there is no difference *in kind* between living and non-living, but only a difference in complexity and degree. As our physics and chemistry improve we may hope to bring the living and the non-living into progressively closer accord, and

have no reason to suspect any final, insurmountable difference. Meanwhile, we are told, science is busily engaged in building a bridge over the gulf which the neo-vitalists declare for ever impassable. Even the reproduction of organisms is not without parallel. To quote from a recent statement by a distinguished chemist who is very far from being a partisan in this dispute: "If into this beaker, containing a super-saturated solution of sodium thio-sulphite, I drop a minute crystal, it *grows*. I take a bit of this new growth and inoculate a second beaker; and so I may go on."[1]

The theory opposed to neo-vitalism (it is on the whole the prevailing theory) often calls itself "mechanical," although it can make no serious effort to show that either chemistry or bio-chemistry is, strictly speaking, an affair of mechanics.

Instead, the term is probably meant to be offensive, and to suggest a very old-fashioned materialism. The choice of the term was therefore a mistake, but apart from this misfortune, the dispute seems singularly barren. Admittedly there is a wide separation between what is living and what is dead; and therefore there is an intelligible difference of policy between those who are anxious to lay emphasis upon the strikingly specific behaviour of living beings as we find them, and those who are anxious to unite the realms of the animate and of the inanimate. The difference in principle, however, is quite another story. To assert that things which seem *very* different must be *altogether* different seems to the by-stander a rash proceeding which might, nevertheless, turn out to convey the truth.

(2) The theory of emergent evolution may be

[1] G. N. Lewis, "The Anatomy of Science," p. 179.

supposed, however, to do something effective in the way of clarifying the affair. Essentially this doctrine is concerned with the nature of our evidence, for the gist of it is that nature at certain times and places has a capacity for boiling over into something new and strange which may also be richer than anything that went before.

This does not mean that *anything* may become *anything*, but that there may be sudden unpredictable mutations from one determinate pattern to another. Logically speaking, any compound *may* have properties which the constituents of the compound do not have—for example, the wheels of an engine rotate although the engine does not—and consequently it is at least theoretically possible that if hydrogen and oxygen, say, combine to form water, the weight and certain other properties of the water could be deduced from our knowledge of the hydrogen and oxygen which compose it, while many of the other and more striking properties of the water could not be deduced at all. Consequently, although water could not arise except from the combination of hydrogen and oxygen, we should have to know what water itself is before we could know the more important of its relations to its constituents, and to the things round about it on which it acts as a whole.

If this were so, the logic of the neo-vitalists might well be sounder than the logic of their opponents, while at the same time we might be able to discern a well-trodden pathway (at any rate after the event) between inorganic nature, bio-chemistry, and the habits of birds and beasts.

We might even begin to hope for a clue to the purpose and values of things. When a radical novelty

"emerges" according to this theory, the ensemble of elements from which the new pattern arises may be said, in a metaphorical sense, to be nature's preparation for the novel thing, and this tendency of nature to prepare for new wholes may be generalized into something like purposiveness in nature. Indeed, if we could discern a tendency on nature's part to grow and bloom (at certain places) into something better as well as more complex, we might have the rudiments of a truly progressive universe before our eyes.

The doctrine of "emergence" to be sure would forbid us to predict what the further transformations would be; and, conceivably, we might not like them very much. But perhaps we should not trouble about these hurdles until we come to them. According to the ordinary theories of physics, nature is held to be indifferent to values, because value is not a premiss of natural science. If, however, she is *not* indifferent to life, but engaged of her own initiative in preparing for it, *nihil agens frustra*, there seems a chance at least that she is also preparing for higher values. The emergence theory gives us more latitude than most others for speculating along these lines.

(3) There remains, however, a more fundamental and a more general problem, the problem, namely, of the origin and the prevalence of effective diversity in nature. Mr. Whitehead has recently reminded us of a peculiarly striking passage in Bacon's "Silva Silvarum" in which the sage of Verulam makes what may truly be a prophetic statement. "It is certain," the passage runs, "that all bodies whatsoever, though they have no sense, yet they have perception; for when one body is applied to another, there is a kind of election

to embrace that which is agreeable to another, and to exclude or repel that which is ingrate; and whether the body be alterant or altered, evermore a perception precedeth operation; for else all bodies would be alike one to another. It is therefore a subject of a very noble inquiry, to inquire of the more subtle perceptions; for it is another key to open nature as well as the sense; and sometimes better."

What Bacon here calls "perception" must not of course be regarded as psychological (for he contrasts it with "sense" and extols the subtle perceptions of weather-glasses and lodestones). We may call it the property of natural election and may seek it far more widely than in minds or in living things. Yet by this principle (presupposing diversity in nature) we seem to have the potency of the most varied as well as of the subtlest development, and the science of the future may well take us back to Bacon in this if in no other respect.

To suppose that nature is perpetually *trying* and preparing herself to achieve life and higher things is like supposing that she croons with joy when some beautiful thing is fashioned. It is poetry and metaphor rather than sober theory. And to suppose, as others have supposed, that everything in nature, even the tiniest corpuscle, contains *something* of life or even of sleeping mind, cannot be said to be plausible. To suppose on the other hand, that there is natural election in a nature that is always diversified, and that living things show in their own striking way the operation of a pervasive and original principle *everywhere* to be found in the universe, should not be surprising and may be abundantly justified. It is for the future to decide whether this resource may flourish or must dwindle.

IV

MIND

IF some philosophical Rip van Winkle—a plausible creature, since the original van Winkle, it will be recalled, used to frequent "a kind of perpetual club of the sages, philosophers and other idle personages of the village"—were to return after his twenty year's sleep, he would probably find as great a change of opinion concerning the mind as in any other direction. When he left with his preposterous flagon for that long ramble by the Hudson, the great majority of his cronies (and almost all who had academic pretensions) took the mind as their starting point in their metaphysical quest, and were seldom at a loss to describe the mind or to explain its difference from all other conceptions.

Indeed, he could not think of many exceptions. There had been a few materialists, but they were dour and rather shamefaced persons, drinking stout or some other vulgar fluid at a dirty little table all by themselves, unless, by preference, they consumed it off the premises in the company of people who did not belong to the club.

When he came back, the proportions were quite precisely reversed. Some of the sages, it is true, said exactly what they had always said; and a few young men had joined them. This group was proud of itself as it had every right to be, but it had become quite small

and drank Madeira or Tokay at a Sheraton table. On the other hand, the larger and semi-materialistic group spoke a different language from that which van Winkle remembered, and had borrowed or transformed so many of the club's pet phrases that they had really become a new fraternity. Besides, they had co-opted so many occasional members from the outside that the club had become a motley and entirely different body.

Various reasons were assigned for the change. Some of the middle-aged members (who wanted to be friends with everybody) assured van Winkle that the alteration had come, simply because the bulk of the members took the theory of evolution as a matter of course. When it is universally admitted (they said) that man's pedigree is utterly animal, it is ludicrous to claim a privileged station for the human mind, or to regard our faculties as nobler in principle than those of sturgeon or reindeer, eagles or mice.

Van Winkle considered this suggestion rather insulting to the intelligence of the older members. Whatever they had thought about evolution (and in fact they had thought a good deal) they had at least been perfectly well aware of the facts of animal generation in the human species. In short, they had always known that man had a humble origin, and van Winkle (he was dazed of course) could not see any appreciable difference in principle between admitting that individuals were curiously wrought out of insignificant specks of matter, and asserting that the species was wrought in a similar way. If the older members (he thought) had convinced themselves, for sound reasons, that the partnership between minds and their bodies had to come from above rather than below, or that it implied articles of association

between time and eternity, he could not understand why a novel doctrine was required. The younger members, however, gave other and subtler reasons, but these were too much for van Winkle. So we may leave him and turn to the reasons themselves.

The reason most commonly given is that the new conceptions of space-time and of matter have given "crass" materialism a decent, if spectacular, burial, and have made the passage from matter to mind not at all unthinkable.

According to Mr. Alexander,[1] space-time is the matrix of all things including minds; and minds have just to take their place among the other things with which they are compresent. According to Mr. Russell, if it is a hard thing to make minds out of billiard balls, it is not so very hard to make them out of gas—more seriously, if families of events take the place of indestructible substances, then, in this looser structure of the universe, minds may be such families too, and if their primary constituents are sensory apparitions, the material out of which both minds and matter are constructed may ultimately be one and the same.

In their summary statement, arguments of this order seem rather to be appeals to the ease of our imaginations than substantial contributions to philosophy. There were plenty of materialists before the game of billiards was ever thought of, and as it happened, the fiery element which, according to the stoics, was the reason that bound the cosmos in its harmony, was very like a gas. Similarly, the mere fact, if fact it be, that what we call "substances" should not be taken to be metaphysically indestructible should be welcome rather than

[1] "Space, Time and Deity."

otherwise to those who believe in the existence of spiritual things.

If continuing endurance be the test of substance, then minds (which seem to lose much at least of their distinctively psychical character in sleep, trances and the like) must appear to have a brief and hesitating substantiality, something like a feeble anti-cyclone. If, on the other hand, rhythm and reiterated pattern is the essential mark of substantiality, minds may be very excellent substances. In any case, the question is never one of easy transition in the fancy, and as regards mind the brunt of the argument must be borne by careful psychology.

Since the "neutral monists," however (of whom Mr. Russell is one), found the inspiration for their ideas in the later works of that very great psychologist William James, it is evident that they may seek most effective support from psychological grounds. Indeed, it is very generally asserted that the current of modern psychology is with them.

If we consider the three principal theories in contemporary psychology (or, in other words, behaviourism, psycho-analysis and the *Gestalt-theorie*), we should be in better plight for forming an opinion on this question.

(1) The general thesis of behaviourism appears to be that the methods employed in animal psychology are the only legitimate methods in *any* psychology. The habits and intelligence of human beings should be studied (in laboratories) precisely as the habits and intelligence of rats in a maze are studied. Now, when we study rats we cannot ask them questions except in the sense in which we can "ask questions" of thermometers or litmus paper. The rats cannot give us a report about their own

experiences; and such reports were the main resort of the older introspective psychology whether experimental or reflective.

Explicit or "true blue" behaviourism, therefore, appears to make the outrageous assertion that introspective reports describe nothing at all, i.e. not merely that such reports are psychologically useless or that our experiences are an affair of unavailing conjecture just like the private history of rats, but that there are no such events as personal experiences at all. A modified behaviourism rejects this extravagance, but is stubborn concerning the uselessness of introspective psychology. Introspection has had its day (we are informed) and has failed most signally. Even if we can sometimes bring it in by the back door, we should concentrate our energies on a frontal assault by methods of strict behaviourism.

On either form of the theory, therefore, mental phenomena are regarded in principle as being a department of biology, and a department that is not even highly distinctive or peculiar. Such opinions, no doubt, can be brought into line with modern theories of matter, but they do not seem to call for such theories. The behaviourist doctrines deal exclusively with the reactions of physical organisms and are consistent with any philosophy of matter. Their connexion with "neutral monism" (if it exists) is principally due to their negative attitude concerning the claims that many philosophers have made for the autonomy and singularity of minds.

(2) In psycho-analysis we appear to have precisely the opposite story. A dream, for instance, may have something to do with "indigestion" or with the flapping of the window-blind when we are asleep. So much

Mr. Freud and others admit, but they insist that what has to be explained is the precise *psychological* character of the dream—why A dreams of gardens, and B of flying, and C of bats and haunted turrets.

This (they say) is a question of personal history, and the explanation must be found, not in anything that instruments can record, but in the interrogation of the dreamer's memories and associations. On the other hand they suppose a man's ordinary waking consciousness to be but a part (and the poorest part) of the source of this critically important evidence, and therefore maintain that we have either to explore a world altogether outside "introspection" or else enormously to extend the range of that term.

In point of fact (it is claimed) the greater part of our mind is hidden from us, because it is buried or repressed. We see what we choose to see, or what we have been trained to expect, or what others tell us should be there. The rest we neglect unless by extraordinary efforts of a special kind (not forgetting professional assistance). Yet we are assured that this buried part of our minds has laws of its own (largely of an infantile type which we take ourselves to have outgrown) and is capable of destroying our sanity and peace of mind, if, without our knowledge, it works against the current of our waking and self-conscious enterprises. This buried and infantile mind is usually supposed to be very nasty indeed. It does *not* come trailing clouds of glory.

The theory, accordingly, seems expressly psychological in character. It is even disembodied in a sense, and wholly unconcerned with the nervous system, yet it carries us so far beyond ordinary introspection, and what

we seem to find ourselves to be, that the contrast may well be more apparent than authentic.

Indeed, as the late Dr. Rivers showed, it is really not so very difficult to interpret the "unconscious" biologically—especially the buried part of it—or to suppose that when we leave the jurisdiction of the waking part of us we pass in principle into the domain of strong biological and neural impulses—blind animal fear, for Rivers (who generalized from shell-shock in the war); and sex, for Freud (who generalized from his civil practice). The future of this theory, accordingly, although not its original form, is very likely to seek this biological direction.

(3) The *Gestalt-theorie*, again, seems anxious on the whole to avoid the complications that are apt to arise when attempts are made to press the distinction between mind and body in the mind-body partnership.

For example, Mr. Koffka, in his excellent discussion of children's minds, expressly repudiates behaviourism, and maintains, in the orthodox way, that what he calls "descriptive" (i.e. introspective) evidence must be distinguished in principle from "functional" behaviourism. He shows, on the other hand, that "descriptive" methods are applicable (otherwise than conjecturally) only in the case of adults and not with little children, and in general is anxious to lay emphasis upon the importance of "patterns" or "configurations" in the whole body-mind realm. These patterns may be psychical, neural or psycho-neural. The essential thing is to explore them all and to recognize their mutual affinities.

Something not dissimilar seems to be the main con-

tention of Sir Henry Head in his recent important work upon "Aphasia."

In this work Head professes, indeed, to be a follower of Hughlings Jackson and the "psychological" method, but his principal endeavour is to unite mental and physical in the conception of "vigilance," and always to consider them together. He repudiates either parallelism or causal connection between specific brain areas (or cells) and specific acts of mind, regarding it as a superstition of stiff-necked anatomists (although his own neck had been stiffish in his earlier "Studies in Neurology"). Instead of this we have always to deal with levels of integration in a mind-body system in which a neural lesion or other anatomical disturbance is followed by a new and more or less general readjustment. The unification of mind and body, he tells us, "is the product of the organism's vital activity from the lowest spinal to the highest cerebral centres. There is no more difficulty in understanding how an act of consciousness can affect a physiological process, than to comprehend how one reflex can control and modify another of a lower order."[1] The whole question is one of different patterns in the same neuro-psychical region.

Summing up then, we may conclude fairly confidently, that modern psychology, instead of attempting to discriminate between mind and body, is anxious, on the contrary, to investigate body-minds in their functional unity; and for the most part, that it does not philosophize about mind very seriously. The fact that psychologists in former times were usually professional philosophers (whereas nowadays professional

[1] "Aphasia," vol. I., p. 496.

psychologists are thoroughly contemptuous of all philosophical training and interests), is a partial explanation of these results. For the rest, we may say, perhaps, that the treatment of psychology as a pattern of events (as in *Gestalt* psychology) comes nearest in principle to those philosophical theories based on modern physics which have been noted in the earlier sections of this essay; but that contemporary psychologists, for the most part, have little interest in such questions.

It seems unquestionable that psychology, following these looser and freer methods, will greatly enlarge our knowledge, and it is probable that its present methods are the best which, for the time being, it can pursue. Problems, however, do not cease to exist simply because it is the fashion to pass them by. Indeed, we may reasonably expect a renewal of interest in them from some important quarter, although not, perhaps, from professional psychologists. If so, the movement seems likely to come either from the side of introspective psychology or from the side of what philosophers call "objective mind."

Already there are signs of a profounder and, at the same time, of a more accurate account of the nature *and the limits* of introspective evidence. The older psychologists were for the most part content to say that anything "individualistic" was psychological. Anything, for them, was "psychological" if it was definitely considered from X's point of view or from Y's. When these differences were neglected (they held), we had to deal with natural science in the ordinary sense. Since the X's and Y's in question were human beings who had conscious minds, these individualistic perspectives were also labelled "mental" or even "conscious."

But this part of the theory was also (very often) perfunctory.

We have already seen, however, in our discussion of Berkeley, that this individualistic point of view would apply to a camera or to any selective agency, just as well as to a mind, and that sense apparitions do not seem to have anything peculiarly mental about them.

Accordingly, if our minds were *composed* of sense apparitions, it would be correct to conclude with the neutral monists that the stuff of our minds had nothing distinctively mental about it, and that this stuff, which is mental in one arrangement, might be material in another.

If, on the other hand, our self-observation reveals processes and modes of being which are not sense-apparitions *at all*, the problem is entirely altered. In fact, by relinquishing all claim to some dubious pieces of property, we might enormously strengthen our title to the rest.

And we seem to have most excellent evidence. A sense apparition, let us say, is red. But we *are not* red, although we *see* red; and although *we* are aware of a red apparition, it seems nonsense to suppose that one such apparition could be aware of another apparition—that a smell, for example, could be aware of a sound, or that a cluster of noises could be aware of a family of colours. It is *we* who are aware, and it does appear that we can observe in ourselves different ways of being aware (such as remembering, perceiving, believing and conjecturing); or again, that in our emotions (such as shame or confidence) we can distinguish quite clearly between our properly mental experiences and the bodily sensations which accompany them.

Given a narrower field, therefore, introspection may

be enabled to supply a purer analysis, but at the same time the limitations of its evidence should be scrupulously noted. If our minds are truly more than we observe in ourselves at any moment—and manifestly they are (if there are minds at all), whatever the importance which we attach to their continuance—then we need not expect to have the *whole* mind revealed introspectively, but on the contrary should have to *infer* the parts of it which we do not notice from the portions which we actually observe.

In its finer issues, again, introspection is a difficult (not an easy) process, and we need not expect it to solve our puzzles off-hand. Yet if its tidings are authentic, and at the same time distinctive, it is certain to teach us something important about ourselves, and it cannot leave us without a witness.

This introspective way of reasoning, subtly refined in the polished musings of Montaigne, and, from his day onwards, prominent, and usually even paramount, in European philosophy is (I have urged) effective still; but it is not the only way in which these problems have been approached by philosophers whose main concern is with spiritual things. The other way is called "objective mind."

Think, for example, of a bank or of a university. The bank, from one point of view, expresses itself in the movements of bank messengers, in shipments of specie, in occasional raids by masked men with revolvers, in the teller's deft manipulation of pieces of paper, in the filling of ledgers with many black marks. Universities, again, when physically regarded, consist of human bodies in proximity within certain smallish areas, some of the bodies being young and a smaller number rather

elderly; and these bodies make a great many noises, blacken quantities of paper, dine in hall and sit in chapel. An observer at a great distance, to whom these events were as remote as protons and electrons are to us, could make nothing more of these events, but *we* should find it as hard to explain them adequately in this physical fashion as to account for the existence of "As You Like It" without a spiritual Shakespeare to compose the play. It is the significance of the banking transaction that counts predominantly in these movements of the bank's messengers; and the existence of universities seems also to have significance.

Seen in this way, mind is writ large—not *very* large, perhaps, since banks and universities are a good deal less than planetary—but on a larger scale than the individual spirit, so that there is less danger of pluming ourselves with invincible self-conceit according to this "objective" method than in certain applications of the introspective way of inquiry.

To be sure, it is not size that matters, and if we are properly warned against exaggerating our own importance, there seems at least equal truth in the counter-reflection that self-belittlement may also be a form of conceit. "Since Copernicus," Nietzsche said, "man seems to have fallen on to a steep plane. He rolls faster and faster away from the centre. Whither? Into nothingness? *Into the thrilling sensation of his own nothingness?* Well, this would be the straight way—to the *old* ideal."[1] Mind in short may have more than planetary significance, and it is certainly over-individual in some important senses. It is probable, however, that these considerations are best reviewed from the standpoint of the next chapter.

[1] "The Genealogy of Morals," Essay III.

V

VALUES

SOONER or later, every philosophy runs upon the idea and the problem of values, and we have made no attempt to conceal the circumstance in the preceding discussion. We may now consider it more directly.

The problem is already contained in the idea of natural election, so admirably stated by Francis Bacon in the effective passage which Mr. Whitehead quoted from him.

We may cap this quotation by another from Montaigne. "In my opinion it might rather be said that nothing is presented unto us, wherein there is not some difference, how light soever it be. And that either to the sight, or to the feeling, there is ever some choice, which tempteth and draws us to it though imperceptible and not to be distinguished. In like manner, he that shall pre-suppose a twine-thread equally strong all through, it is impossible by all possibility that it break, for, where would you have the flaw or breaking to begin? And at once to break in all places together is not in nature."[1]

In other words, if the universe is composed of selective beings, and is not a tedious level uniformity; if causal laws themselves express these selections; if there are ultimate affinities and repugnances in the universe, then

[1] "Essays," Bk. II, Ch. XIV. Florio's translation.

the sphere of value for any particular thing, is the sphere of that which counts selectively for the thing, as opposed to that which does not count, has no affinity or repugnance, is neutral or indifferent. In this sense everything counts to itself (I do not say consciously), and things other than itself count (positively or negatively) if they are not indifferent.

Such values are relative. For, by hypothesis, one thing, or one kind of thing, selects or has affinity towards certain things which another thing, or kind of thing, either does not select at all, or selects in different aspects or in a different fashion. A thing's value to itself, for example, cannot be the same (to itself) as the value of any other thing to it.

On the other hand, such values are no more subjective, no more unreal, no more dependent upon fancy or caprice than equality or proximity or any other relation. Thus if shade and a dank soil are values to ferns and not to sunflowers, the statement means, quite objectively, that ferns flourish in one environment and sunflowers in another. In so far as value is found in the fact that different things make different selections, we have always to specify that to which anything is said to be a value, and would otherwise speak without a meaning. But these natural elections are manifest natural facts.

It follows, of course, that value in this general sense is entirely independent of minds or consciousness (in principle), since it holds of anything that is selective; and that in the case of beings who can reflect, fancy or feel, the question properly is what they do select, to what they have affinity, what is good for them; and not what they think, fancy or feel is good for them.

Thus oxygen or vitamines were good for the human race before anyone knew anything about them, and probably were just as good for us then as they are now. Similarly, things that we fancy or "feel" to be good for us need not truly be so (e.g. in general the false stimulus of alcohol or cocaine).

If we expanded this sense of value a little we should have to distinguish that which counts favourably from that which counts unfavourably, calling the former a "value" (in a narrower sense) and the latter a dis-value. Thus a fly would be a value for a spider, a spider a dis-value for a fly; while a first edition of Rabelais would be a non-value to both of them (i.e. neither a value nor a dis-value).

Certainly this procedure might plunge us into a further difficulty. What is "favourable" to a fly probably means what is serviceable to the continued existence of the fly (or perhaps to its progeny); and in the case of certain beings, at all events, we might reasonably ask whether the mere continuance of existence is in any important sense a genuine "value" at all (e.g. prolonging a dying person's existence with oxygen). Supposing, however, that problems of this kind could be solved by the exercise of sufficient patience we should have, in outline, the position stated above.

We should also be able to distinguish between intrinsic and instrumental, or "economic" values. A thing's self-maintenance, regarded from this point of view, may be called *its* intrinsic value. Anything in its environment which favoured its continued existence would be of economic value for it (i.e. a serviceable commodity) and anything in its environment which was noxious to it would be, for it, an economic dis-value.

This distinction between economic and intrinsic values in the human domain forms as good a starting point as any for the further philosophy of the subject. Anything useful to mankind, anything that, as Ruskin said, *avails* for the human species, is called an economic good. In economic science, however, two additional considerations enter, viz. scarcity and exchangeability.

According to the Austrian economists, "natural value" means not only that something is useful but also that it might be prized. The oxygen in the air, although enormously useful to us, is not a thing that we prize (for it is superabundant). It is therefore without "natural value"; and similiarly anything which is altogether too scarce to be beneficial is not a value (e.g. radium before it could be extracted in sufficient quantities for the needs of hospitals).

Thus "natural value" gives an analysis of the conditions under which anyone is prepared to *pay* for a commodity or to make efforts and sacrifices in order to ensure a sufficient supply of it. Hence arises exchange-value (pre-supposing division of labour), or the ratio (usually according to a money basis) between demand and supply.

Economic value, in any of these senses, is plainly a subordinate notion. Serviceable commodities are just what a man makes use of (and for the most part uses *up* or consumes). Thus man is the end; commodities are the means. Similarly, to sell is to relinquish possession for a consideration; to buy is to relinquish a consideration for possession; and to produce commodities is to relinquish time, ease and sometimes pleasure in order to construct something that is or may be in demand. To exchange is thus to relinquish

something valuable for the sake of something else that is valuable, hoping to gain thereby. It cannot be the basis of value because it pre-supposes value.

Accordingly (except with regard to human-services where the question is more complicated), we have to consider the services of economic commodities as subordinate—from man's point of view—to intrinsic human values.

Nevertheless, our earlier analysis would suffice were it not for a special circumstance. Economic science is mainly concerned with the principles of marketing, and what is brought to market is not only what is really needed, but what anyone can be induced to buy—out of vanity, perhaps, or for fashion's sake, or by the influence of advertisements.

For this reason, economists usually inform us that the services of commodities are determined by human *desire*. It would be better, no doubt, if they were content to speak, quite simply, of inducements to purchase, since we do not know nearly enough about human desires, and a great deal about what people buy. Up to the present, however, economists have preferred to use these psychological terms.

A great part of value theory, even among the best modern exponents of it, is riddled with the ambiguities that arise in this way. Thus we are told, firstly, that value is not independent of "interest"; secondly, that it is wholly a function of "interest"; and when we ask what "interest" means, we are referred, very positively, to pleasure, desire, or the emotional-appetitive side of our consciousness.

The consequence drawn is that value, although not intellectual, *is* emotional. If "interest" were taken

in its literal sense (*interesse;* to make a difference), then value would clearly come under the principle of natural election whether we were aware of the election or not; and again if the term is taken in the sense that goes back to Bentham and means actually ascertained pleasure or satisfaction, we should at least know where we were. As it is, we are kept in perpetual oscillation between the conception of what people "really" need and the conception of what they are supposed to like.

The roots of this ambiguity run pretty deep. Indeed, for several centuries, two essentially different conceptions of value have been in competition. According to one view, value means perfection; and the problem of value, metaphysically speaking, is the problem of the perfection of the universe, together with the degree in which particular things within the universe may be said to be perfect *in their own kinds.* While the perfection of a *man* must include intellect, happiness, a good conscience and a love of beauty (since *he* would be a maimed creature if he were deficient in any of these respects), other things, like stones, might be perfect in their own kind without possessing the least particle of these properties; and man himself, if he is a composite being, partly body and partly mind, would have a portion of his proper perfection in his merely bodily health and in his unconscious growth.

According to the other point of view, value is derived from experienced satisfaction; and even those who strongly affirm that satisfaction, in the sense of contentment or delight, is by no means the whole of value, very often maintain that nothing other than conscious beings or their conscious states can have *intrinsic* value, and that instrumental values only accrue from those

commodities which minister to some one's conscious experience.

In view of what has already been said regarding "natural election" and "perfection in a thing's own kind," this latter contention would seem unjustified; and the arguments adduced in its support seem desperately weak. The substance of them is that nothing, to a man, is worth doing or being unless the man is conscious of it. Health, for example, without the enjoyment of health, is not a human value.

This proves too little. To mankind, we are often told, the unexamined life is not worth living; an unhappy life is not worth living; an inactive life is not worth living. All these statements, very likely, are true, but we cannot conclude in consequence that self-examination *alone* is valuable, or happiness *alone*, or activity *alone*. There are far too many candidates for the position.

On the other hand, an issue of great importance is joined at this very point. We may call it the principle of differential value.

According to the principle of natural election what is valuable to a thing is either itself, or what it selects from outside (for companionship, or, economically, for consumption). If things were simple and had a uniform undifferentiated mode of existence, this conception might suffice except for one very important matter. When we argue that what the spider needs is good for the spider, and that what the fly needs is good for the fly, we still have to ask whether the spider is or is not better than the fly. We cannot dismiss this question as meaningless, and in view of the way in which mankind exploits his whole environment, animate and

inanimate, we are bound to admit that the problem is important.

Have we to say, in the end, that when human beings speak of values they properly mean human values only; or can we say that human beings (not only in their own eyes) may be of greater worth than any other set of beings on the face of the globe?

Suppose, for example, that a taxi-driver runs over a dog just because it happens to be in the way and because he does not care to take the trouble to avoid it. Are we to say nothing but human susceptibilites count for human beings, so that, unless the taxi-driver dislikes hearing the yelps of a stricken dog, there is no reason why he should try to avoid it? Or are we to say that it is important whether or not the dog *suffers*, irrespective of the taxi-driver's feelings on the subject?

If we take the former line, it is not at all plain why the taxi-driver should be credited with a regard for *humanity*, since the argument is ultimately that anything is good to a particular man if it belongs to *his* existence or to *his* natural election. (The man, although not our hypothetical taxi-driver, might even prefer dogs to his own kind.) If, on the other hand, we say that it is the suffering that counts, even if the suffering be a dog's, then it is plain that our argument extends to *all* suffering wherever it exists, and not peculiarly either to human suffering or to our own. In other words, we have now an argument in which value is not relative at all.

Again, when we remember the complexity of many things and particularly of human beings, the same consideration forcibly constrains us. Supposing our own existence, apart from gross imprudence, to be

reasonably well assured for a certain approximate term of years, then the important question is, not whether we are to live, but whether we are to live *well;* and this in its turn means whether we are to concern ourselves with beauty, truth, the welfare of others and other excellent things, or whether we are to be content with an existence devoted to poorer and feebler aims. Unless beauty, truth and other such values are better *in their own right* than other possible aims, there can be no authentic significance in any worthy ideal; and no genuine distinction between living and living well.

Accordingly, while the *relative* sense of value which is founded on self-assertion and the principle of natural election is of some moment, it is ultimately of lesser consequence than the *absolute* sense of value which enables us to discriminate according to the proper excellence of pursuits which we have the privilege of ensuing. It is in this sense that our selves are really "in the making" and have the potency of growing (although sometimes by taking thought) into something finer and better. This is the problem of ethics, or, in other words, the problem of the valuation of standards of value—and of justifying what we call civilization, if that be possible.

It is also, essentially, the problem of theology and of religion. In Western Christendom to-day the general acceptance of the standpoint and methods of the natural sciences prevents us from occupying ourselves at all minutely with religious cosmogonies, or with the Scripture story of the origin of worlds; and many other aspects of what (unjustly, I think) is slightingly called "dogma" are now passed over in comparative silence. In place of this there is a tendency to regard theological

beliefs as an affair of "religious psychology" as if emotions of yearning, wonder and awe, or the aura of sanctity that surrounds the "numinous" (or the holy) could of itself lead eternity captive, or discern, afar off, the treasure for which our spirits grope.

How long this tendency may reign is perhaps beyond reasonable conjecture, but, greatly daring, we may hope that it will not hold undisputed sway for ever. If it is reasonable to think, as many are eager to think, that the voice of our æsthetic, ethical and religious aspirations is not a voice crying in the wilderness, but instead a cry for something to which the whole cosmos responds, we must search for arguments which show that the belief is reasonable. If psychology suggests such arguments, nothing but philosophy can confirm them, and if philosophy does confirm them it must refuse to be "human, all too human," and must survey, not man only, but the whole universe in the measure in which it may be revealed to the senses, to experiment, to intellectual reasoning, and to reflective imagination.

In itself the dignity or littleness of mankind may be a very small matter, but if the worth of man's ideals and the conformity of the universe to the best that he may become is also a small matter, something better must be produced in the way of arguments supporting this contention than the fact that man's existence is tiny and brief in comparison with the immensities and the eternities that surround him. And if our age and its immediate successors may not hope to *solve* these ultimate problems, they should set themselves, at least, to have clearer eyes and to *earn* their confidence in the light to come.

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