PAPERS READ BEFORE THE SOCIETY, 1915-1916.

I.—THE MOMENT OF EXPERIENCE.

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THE subject which I have chosen for my address is one which seems to me to raise the metaphysical problem in its clearest and most definite form. The moment of experience is the present moment, the moment in which what we are actually experiencing is contained, as distinguished from an abstract mathematical moment of time which has no content at all. Whatever we experience is now, and only what is now is immediate experience. But the word "now," as used in ordinary discourse, is vague. Anyone unexpectedly asked to say what length of clock-time he associates with his moment of experience would probably hesitate and be in doubt whether to assign to it three or four minutes or something less than a second. The moment of experience is not vague, however, when its content is considered; it is then sharply distinguished from all other moments. It is the moment during which experience is sense experience. It is the only moment the experience of which may be analysed by the psychologist as it occurs, and the experience which occurs in it is the only experience which exists as immediate experience.

It is in the moment of experience, therefore, that the mind and the world are immediately related. This moment has

duration, and yet all that occurs within it is present, nothing that occurs within it is past or future. It is altogether now, no part of it is then or when. The moment is also distinguished by the special character or quality of its content, sensation. This quality is unmistakable, but it is undefinable otherwise than by reference to the experience itself. Other moments contain remembered or imagined or inferred experience, in the present moment only is the experience actually felt.

These are familiar facts, and the problems they give rise to are familiar problems. There is the problem of the relation of psychological to mathematical time, or, as some prefer to state it, the problem of the distinction of mental time from physical time. Also, there is the problem of the ultimate nature of sensation and its relation to other forms or modes of knowledge. These are problems of psychology as well as problems of philosophy, but while psychology is concerned to make clear the distinctions they involve in order to free its subject-matter from confusion (the psychological interest being the definition of terms and classification of empirical facts), for philosophy the problems are vital, they go to the very root of the question of the ultimate nature and relation of knowledge and reality.

It is the philosophical importance of these problems, and not their mere dialectical interest, which I am now concerned to present to you. It is because I feel that the whole possibility of a consistent theory of life and knowledge depends on the power of philosophy to solve these problems, and because the metaphysical solution seems to me clearly indicated in the very nature of the contradictions which give rise to the problems, that I have been drawn to this study, the main object of which is to make explicit what seem the implications in the concept of a moment of experience.

I will begin with a particular problem on the common-sense plane, a psychological problem which involves no principle of philosophy at all.

I. *The Sensation of Movement.*

When we see a shooting star we have the visual sensation of a luminous line drawn across a more or less extensive region of sky. It endures a very short though appreciable time, and, although it seems to begin to disappear at the point at which it began to appear, there is a certain time during which the whole line is simultaneously present to our consciousness, otherwise it would not be experienced as a line. It appears to us, when we describe it, as though a star previously fixed in the firmament, or having suddenly come into view, had moved across the sky, leaving a trail of light behind it, and that when it had reached the end of its journey and before it had disappeared the whole trail was present to sense. We believe that this is an illusion of the senses: that is to say, that what appears to sense does not actually exist, and that it is explained by the faculty the senses have of retaining or remembering the excitation of them. We believe, on what we accept as scientific evidence, that when the trail is present to consciousness, nothing in the physical world is stimulating the sense organs; in fact, that the trail of which we are conscious has no physical reality corresponding to it. We believe that the physical reality is a point of light, not a line of light, and that whether the movement of that point is due to its own translation or to the translation of its observer consequent on the earth's movement through space, or to both, the point always was in only one position at one instant and not simultaneously at every position in the line. Were, then, our sensation of the falling star strictly limited and rigorously correspondent to the actual conditions of the physical cause, we should never be able to have the ordinary experience of it. Were our consciousness to begin and cease when the physical occasion begins and ceases, there could be no duration in the psychological meaning of the term, no continuity of the past, no carrying on of the past into the present. Consciousness would be of the present

moment and the present moment would be a point without duration.

Assuming the occasion of the sensation to be as science teaches, we have to explain the illusion in the sensible appearance. I can think of only three ways in which a psychologist might suggest an explanation. First, he might suppose that it is due to the mechanism of sensation and that this includes some sort of contrivance such as the photographer's sensitive plate, but not necessarily material—something like what the older psychologists imagined when they called the mind a *tabula rasa*. Our sensations would be of the impressions made upon it, and these being a mechanical effect would not be restricted to the actual duration of their cause. What we sense would be the marks or impressions left, not the actual cause of them, and these impressions might exist after the cause had ceased to exist. Secondly, he might suppose that the line of light is not a pure sensation but a combination of sensation and memory, that, in fact, it is only the point and not the line which is sensed, and that the line is really our recollections of the sensations of the point when it was on the preceding positions along the line. Or, thirdly, he might suppose, and this is, I imagine, the usual explanation adopted in the text-books, that the mind has a faculty or power of retaining sensations for a short but appreciable time after the excitation has ceased, and hence excitations which physically are a true succession, one past before the next is, may coalesce or overlap in sensation. Some sensations may be simultaneous, at least as to parts of them, although their excitations are not.

I think all three explanations are wrong. What renders them, in my opinion, one and all futile is the assumption which underlies each, that the experience of movement or change is not itself a simple sensation, a single sense-datum, but something which can only be explained as a relation of numerically distinct sensations, or at least of numerically distinct sense-data within a sensation. All sensation, in my view, is of

change. Movement or change is immediately given to us in sense experience. The change from A to B is not experienced as two sensations, one of which is "first A" and the other "then B"; "first A" is not only present when "then B" is future, and "then B" is not only present when "first A" is past, but both are present in an indivisible sensation, and the distinction is an after-result of reflection and intellectual discrimination. Before I try to formulate and defend this thesis, I will give a specific reason for rejecting each of the three explanations I have indicated.

The first explanation—that we truly sense the line, although there is no line in reality, because the line forms part of the picture of reality present to the mind—is a theory which appeals to common sense on account of a somewhat striking analogy. A moving point, such as we suppose the shooting star to be, appears as a continuous line on a photograph. This seems to suggest that the retina may perform the same function as the ground glass plate of a camera. The analogy is very striking when we consider the structure of the special sense organs, particularly those of sight and hearing, and the functions of their various parts. A photographic camera is a simple replica of the mechanical apparatus of the eye, by which rays of light from the external scene are condensed by the lens to form a small image on the sensitive retina. In like manner the waves of sound are condensed into vibrations of the small tense membrane which forms the drum of the ear, a mechanism imitated in the receiver and transmitter of the telephone. If the formation of an image of the external scene is a necessary condition of the perception of the external object, and if it is this image which is the object of the sensation, then it seems natural to account for the difference between the inferred cause of the sensation and the sensation by the conditions of the formation of the image. A moving point in the external scene might be supposed to form a line in the image, as in fact does happen when we photograph a changing scene. Is there such an

image intermediating between the external reality and the mind? Psychologically there is no ground for supposing it and no advantage in supposing it so far as theory of knowledge is concerned.

The problem of knowledge is not simplified by supposing the object of knowledge to be a picture of reality projected on a sense organ rather than the external reality itself. Philosophically it would complicate the problem of real existence by substituting a representative for a presentative theory. The only ground for supposing that the object of visual sensation is an image of reality and not the reality is the fact that theoretically we can obtain an image behind the lens of the eye and also that if we look into the eye of another we can see reflected back to us the image there formed. But because an image always exists theoretically and because it can be reflected back to another it does not follow that it is, or could possibly be, an object to the mind itself. Not only is the image we may see in the eye of another person never the image that other person sees, but there is no reason in the fact that we see it to lead us to suppose that the mind must be conscious of an appearance of reality distinct from reality itself. We may, therefore, reject the view that a picture of external reality is the immediate sensed object and that this picture may have characters the original has not.

The second explanation is that the line is not really sensed at all, but that only a point in the line is sensed, that the moment the point has moved its position the sensation produced at that spot has ceased and a memory-image has replaced it. It may then be supposed that quite recent memory-images are as vivid as sensations, or so nearly so as to be indistinguishable from them. Hence the line is supposed to be simply a fusion of quite recent memory-images with the actual sensation. Such a view will not stand any psychological test. By every criterion of sensation the line is sensed not memorized. I can control a memory-image. I can call it to mind, keep it in mind, let it pass out of mind. I have no control over a sensation, I am

dependent for it on the actual stimulus of a sense organ. Judged by this criterion the line is a true sensation; there is no such difference between one point and another as there is between sensation and memory, but the memory-image of the line when I remember it is entirely different in the nature of my experience from the line when I sense it. Were part of the line a memory I ought to be able to keep it and prolong it indefinitely, or at least to keep it in mind until fatigue should overcome me. I cannot do this. There is, moreover, no difference of quality within the line; it is only the duration of the experience which enables me to imagine the possibility of a difference. The mark of sensation is to be actually present experience in the meaning that there is present modification of the organism. As any sensation which endures has a beginning and end, it seems possible to deny that the beginning is still sensation when the end is reached, because it is then past not present. Such an argument would defeat itself by depriving sensation of all content whatever. The sensation would be merely a point marking the limit of memory.

The third explanation I can best illustrate by a quotation from Herbert Spencer's *Principles of Psychology* (II, 186). "It is a familiar fact that all impressions on the senses, and visual ones among the number, continue for a certain brief period after they are made. Hence when the retinal elements forming the series A to Z (different sensitive points on the retina) are excited in rapid succession, the excitation of Z commences before that of A has ceased, and for a moment the whole series from A to Z remains in a state of excitement together." The quotation is from an argument to prove that the notion of space may arise out of the notion of simultaneity, and that simultaneity may be the direct sense experience of a rapid succession. It is very apposite to our case in point, and illustrates exceedingly well the problem of the perception of change. It seems self-evident that if sensation be actually present experience we must exclude from it whatever is past, and yet if nothing within the sensation

be past how can it have duration? Hence the attempt to account for the direct consciousness of change by supposing that sense impressions last longer than the stimuli which excite them, so that a rapid series of stimuli are a true succession, each over before the next is, while the sense impressions they cause overlap and are experienced as simultaneous. (To avoid misunderstanding, it should be remarked that this lasting or enduring of the sensation beyond the duration of the stimulus is not what is ordinarily intended by the term retention or retentiveness in psychology. Retentiveness as employed in psychology is the presupposition of our power of remembering a past sensation, not the power to prolong a sensation in present experience.) What then is the reason for rejecting the view that the sensation of the line is due to the retention of the sensations of the points so that some have not ceased when others have commenced? How far it may be physiologically true that the experience of simultaneous visual points, such as the series of points in a luminous line, is due to an excitation of numerically distinct points on the retina I do not know, but that successive excitations of different points overlap seems to me to bring us up against formidable difficulties. In the first place it supposes the retina immobile, but, as we know, the eye moves, and therefore, if the eye follows the moving point, one point of the retina will be alone continuously excited, and in this case it would seem we ought not to see a line but an increasingly brilliant point. And in the second place, what is still more important, were it proved true of one sensation that in one respect, viz., duration, it does not correspond to its excitation, what ground should we have to argue that it corresponds in any respect?

In my view the explanation of the appearance is not physical nor physiological but psychological. We are conscious of a rapidly moving luminous point as a line of light, not because all or some of the points in the successive series excite sensations which overlap the other points in the series, but

because the whole series is within the moment of experience and therefore a present sensation. The moment of experience is limited in duration and limited in discrimination, but within the moment every point of a series, whether it be within or beyond the limit of discrimination, is present to sense, whatever be its relation of before and after to the other points of the series. A point or instant is not past because it is before another which is present, nor is it only present when the preceding member of the series is not present. It is present while it remains within the moment of experience and so long as it is present it is not even fading away. The moment of experience has within it no distinction of past and present, but it has within it the distinction of before and after. The limit of its duration is where memory takes the place of sensation, the limit of its discrimination is where before is indistinguishable from after. Within the moment, whether the interval separating two points in a succession is discerned or not, each point is present and sensed, no point is remembered or imagined.

So far I have not touched on philosophical difficulties, I have tried to think how psychologists might deal with a purely psychological problem without raising questions of the validity of knowledge. Before I leave the psychological consideration I will try and indicate exactly in what the difficulty lies and what to me seems the way of escape. A sensation is only, wholly, and always present. The object of a sensation, the sense-datum, has for its essential mark that it is given at the present time. Yet though it is present it seems that it must have within it what is not present but past. A movement or change may be a sense-datum, for we know movement or change as present fact, and not as inference from present fact. A sensation whose sense-datum is a movement must have duration, what has duration must begin and end, beginning and ending cannot be simultaneous, one is before, one is after, the other. But, as we have seen, a sensation is

altogether and entirely present, therefore the beginning and ending, the before and after, within the sense-datum must be together and simultaneous. There is here undoubtedly a metaphysical problem which I will state directly, but it need not disturb the psychologist. In the sensation of the shooting star the line of light is not an illusion, the sense-datum is a movement, and a movement can only be present in a sensation as a line, for it is indivisibly and wholly present. To suppose that the sensation of movement is not really one sensation, but an infinite series of sensations, in each of which a different point of space is sensed at a different instant of time is not only a psychological impossibility but a denial that movement is a sense-datum at all.

II. *The Specious Present.*

I will now leave the consideration of the particular case of the sensation of a shooting star and take up the general problem, of which I have cited it as an illustration. This is the problem of the relation of the momentary "now" of psychical experience, in which temporal distinctions are included, to the momentary "now" of physical events from which temporal distinctions are excluded.

Consciousness is the experience of a present actual now this now is momentary, and the succession of these moments is a time series. Also the object, the reality of which we are aware in consciousness, is a succession of events, each of which has its moment of present existence and the succession of these moments is a time series. But there is a difference between the moments of consciousness and the moments of physical events. The difference is in what we name duration. The moments of consciousness endure. The now of experience is not a point or division between what is past and what is future in the time series, but a time span with definite content. It holds within it what in the physical series may be already past or even not yet. This present actual moment of experience

has been called a specious present to distinguish it from a mathematical present. The term was introduced into general psychology by William James. A specious present is a reality of psychical nature with no counterpart in the physical universe, and whenever we represent it as existing physically we find that we are in fact introducing into nature what has meaning only in consciousness.

The specious present or moment of experience is the moment in each conscious subject's experience which while it endures he calls now, and within which are his sensations. It is the grasp or apprehension of a reality ceaselessly flowing away and ceaselessly being renewed. It is not a moving point, it resembles rather a field of vision with fixed limits, across which a panorama moves. The quality of the moment is to be wholly now. It is distinct from past moments which were once now, and from future moments which will be now. We feel to this present moment that it alone is and that all that really exists is in some way in that moment, while all past moments are known as a memory of what was and all future moments as an imagination of what will be. Yet this "specious present" is not a boundary line between past moments and future moments, it is itself an actual duration, and therefore has difference within it, as well as being itself different from what is excluded from it. The distinctions within it are of two kinds, which by a natural analogy we think of under the forms of time and space. The duration of the moment involves a time distinction within it. The extension of the moment, that is to say, the diversity of its content, the fact that all the different senses present objects to the mind in one and the same moment, and the fact that the mind in attention can select one or another, can wander over a practically unlimited field, can turn aside from sense to memory and imagination, all within the moment of experience, involves a distinction which can only be presented as spatial. Mental activity in all its wide range falls within the specious present.

It is very important, at this point, to be on our guard against a loose meaning of the phrase, the specious present. In ordinary converse we speak of long and indefinite periods as present, whenever these periods form part of the unity which the action in progress supposes, or when they embrace the whole set of conditions of a present activity. Thus we speak of the present war, the present conversation, the book we are at present reading, or we may include vast periods of time in the present as when we speak of the present age, the present geological period, or the present condition of the solar system as compared with its supposed condition in a nebula. This, of course, is not for our consciousness the specious present. Yet this application of the term present has an important bearing on its notion, for our very power to think these vast periods as present depends on our power to imagine a mind for which they would be a moment of experience. In effect we imagine the present moment in which feeling and sensation are immediate so extended as to embrace these long periods. And also our imagination serves us in the opposite direction. We can suppose our specious present contracted to embrace an infinitely small portion of its content, so that the other portions should be excluded from it and relegated to a past or a future as vast as the periods to which we have just imagined it extended. Just as in the words of the Psalmist, "A thousand years in Thy sight are but as yesterday when it is past and as a watch in the night," so also is it equally true that yesterday may be as a thousand years. We cannot mean, then, by the specious present some definite quantity of abstract moments, for there are none; we must mean some constant ratio of conscious apprehension to the variable moments which form its content.

Let us suppose that we are looking through a microscope, and let us suppose also that our (theoretically perfect) instrument has an adjustable objective, so that any object under observation may be indefinitely magnified. The field of vision

will not vary, but will remain constant both in duration and extension whatever is within it, but less or more of the object will come within the field as the magnification is increased or diminished. That is to say, whether in relation to unassisted vision the magnification be 50 or 500 diameters, the field is the same, the time required to attend to anything within it is the same, the number of parts or divisions in it is the same; all these are constant and what is variable is the quantity of the object which will come within the field. This constant field of vision, irrespective of the varying quantity of the object observed, illustrates the nature of the specious present. But we may get a better illustration still. A microscope effects only a visual magnification and the difference between an object seen under the microscope and the same object as it exists for unassisted vision is experienced as a discrepancy between sight and touch. Imagine then that some instrument could be contrived which would effect an exactly corresponding increase or decrease in the discrimination of all the senses to that which the microscope effects in the case of vision. Suppose that such an instrument were not limited as the microscope is to magnifying the object so that less of it occupies the field but could also diminish the object so that more of it would occupy the field, and suppose that with every alteration of visual magnitude there were an accompanying corresponding alteration in the tactual, auditory and other senses and, with every alteration a constant field. Such a field in which all the senses would be co-ordinated is a fairly exact analogy of the specious present. If we had such an instrument it would enable us to pass from our system of reference to any other we might choose and to preserve our identity through every change. By making a larger or smaller quantity of the object of our present experience occupy the constant specious present of consciousness and by adapting all our senses to the alteration, it would be as if we ourselves became proportionately larger or smaller in relation to our normal world.

The moment of experience, or the specious present (the two

terms are for me synonymous), is then the span of consciousness throughout which the reality known is immediately present as sense experience and within which the activity of the mind in sensation, memory and imagination is in being. Theoretically there is no limit to what may occupy this moment, but the moment is itself constant and not variable, however variable in extension and intension its content. This content, however, though theoretically unlimited, is practically defined in its range by our organisation, and by the mode of our activity, to a certain system of reference. Thus my whole life from my birth might conceivably be the content of one moment of experience, that is to say, it might be entirely present to me not as memory but as immediate experience. This would not imply the enlargement of the moment of experience but a variation of the system of reference. This at least is the view I hold. Against it may be urged the undeniable fact that we are able to and actually do measure this moment of experience by a purely objective standard. A certain definite period of our clock time enters it, and neither less nor more. My reply is that such measurement does not determine the moment of experience, but the system of reference within which and in relation to which the consciousness is functioning.

III. *The Relation of Psychological Duration to Mathematical Time.*

Whether the view of the moment of experience which I have just given, that it is constant while its content is variable,—not in the sense that it is a series or succession of ever new experience, but in the profounder sense that all its objective characters, including space and time, are variable, and relative to a system of reference,—be accepted; or whether the ordinary conception of an absolute space and time and a variable moment of experience be held; in either case the concept of a moment of experience gives rise to fundamental problems of philosophy. These problems fall naturally under

two heads, one formal, the other material. One is the problem involved in the duration of the moment of experience, the other in the nature of its content, *i.e.*, of sense-data. The first problem is the relation of psychological duration to mathematical time, the second is the problem of the status of a sense-datum.

It is evident to everyone who reflects that the moment of experience is not the mathematical instant which divides the past from the future. It is quite obvious that while the mathematical instant may fall within the moment of experience, the latter cannot fall within the former. The reason is clear. The mathematical instant is a point, the moment of experience is a line, the first has no dimension, the second has one dimension. If mathematical time be represented as a series of instants, one of which is present and the others of which are past, then the moment of experience holds within it some instants which in the mathematical series are past, and these in the psychological series are still present. This I think no one disputes. But the mathematical instant is also the limit of a series or succession of instants which are future. Do any of these future instants fall within the moment of experience, so that some instants which in the mathematical series are future, in the psychological series are present? Or, is the present mathematical instant the limit of the series of instants which falls within the moment of experience, so that in respect of all future instants the mathematical and psychological series correspond in a present point common to both? This latter alternative seems to be the opinion of Mr. Russell. He says: "The 'specious present' is the stretch of time from the present instant back through the various moments when present objects of sense ceased to exist." "It involves," he goes on to say, "mathematical time as well as psychological presence."* This seems definitely to exclude mathematical future time. What is the ground for this, and is it true?

* Article in *Monist*, April, 1915.

So far as the concept of mathematical time is concerned the future is on the same plane as the past. So far, that is to say, as we consider physical events determined by a time order, forming a series standing to one another in a relation of before and after, there is no difference in our concept of time future and our concept of time past. If we suppose that some J. J. Thomson of the supra-world, for whom our sun was an atom, were to cause the earth to fly out of the solar system like an α -particle, it would upset all our astronomical predictions no doubt, but it would not affect our concept of time future. If, then, the moment of experience overflow the mathematical instant, there is no *a priori* reason why it should be only over the series behind us and not also over the series before us. Yet it seems difficult, and even in a certain sense paradoxical, to suppose that the present moment of experience can embrace instants mathematically future, as well as instants mathematically past. Why? I think it is due to an assumption. We naturally and unconsciously assume that the mathematical instant is original and independent of experience, and that the moment of experience is the comparative failure of consciousness to grasp or apprehend this reality in its purity. The moment of experience is then the more or less successful attempt to get a sharp focus of a reality which itself possesses ideal precision. On such an assumption there are two very strong reasons for holding that the moment of experience is the stretch of time from the present mathematical instant back through a certain series of past mathematical instants and never forward into the future. The first reason is the law of parsimony. If the mathematical instant is what consciousness is striving to grasp, everything which can be excluded from it will be. In other words experience will strive to make its moment coincide with the mathematical instant, and so far from darting in front of it will lag behind it as little as possible. The other reason is that the past mathematical instants, having already been experienced, can be retained in

the present, whereas future instants, not having occurred, cannot be retained.

It seems to me that to assume the independence and originality of the mathematical instant is without any justification. Also it leads to a kind of absurdity, for if the mathematical instant be real then the real has no duration, and the experience of duration is illusion. There can be no ground for such an assumption, just because experience is itself the highest court of appeal. On the other hand, to hold that the moment of experience is original and absolute is not an assumption, because experience is itself the ground of all implications, inferences, and assumptions whatever. The mathematical instant is not an absolute reality, because in the first place it is abstract, not concrete, and in the second place it is part of an intellectual scheme. This scheme is a device by which we represent reality. If reality be activity we can only present it to the mind as a continuity of change, and this must appear as a division between what is formed, or acted, or made, and what is forming, or acting, or making, and the moving centre of the activity will be represented in thought as a point or limit dividing past and future. The point will be the ideal abstract centre of the activity, and the moment of experience will be the concrete concept of the activity, and will therefore of necessity hold within it something which in the abstract is past, in the sense that it is before the abstract centre, and something which in the abstract is future, in the sense that it comes after the abstract centre. But only in the abstract meaning of mathematics will past and future be distinguishable parts of the moment, and, as so distinguished, past, present, and future are unreal abstractions synthesised in the concrete concept.

We are not, however, entirely dependent on analysis of the concept of present activity to prove that mathematical instants abstractly future form part of the moment of experience. There are actual facts of experience which are difficult to

explain if it be not so. In the case of all expressive action—gesture, speech, writing, etc.—the whole meaning to be expressed is intuitively present in every moment of the expression as it proceeds. Were it otherwise we should be in the impossible position of striving to express what did not exist to be expressed. A musical melody, a proposition, a sentence, even an exclamation, will occur to everyone as cases in point. If, then, expression imply intuition (I am not using the word intuition here in a technical sense), it is impossible to schematise the moments of the expression unless they can advance beyond the mathematical present instant. For example, can I suppose that when I am pronouncing the word “London,” the second syllable is not within the specious present until I have completed the pronunciation of the first, although the first is admittedly within the present when I am pronouncing the second? I may refer also to the very careful psychological analysis which has been made of the act of reading, which seems to bring out the fact quite convincingly that mental apprehension is always ahead of the actually sensed word.

There is also another familiar experience which appears to me to throw considerable light on the nature of the duration of the moment. Everyone has probably at some time had the experience of being awakened from sleep by some sense-excitation, such as a knock at the chamber door, a word spoken into the ear, or a touch on some part of the body, and experiencing this sense-excitation as the conclusion of a long, intricate and complex dream. Unless we are to suppose in such cases a miracle of coincidence, we know for certain that the sense-stimulus was the occasion of the dream of which it seemed to form the natural climax. Does not this show that a long-enduring psychical experience can take place during what in normal waking life we call a moment, and also that this duration can appear to the mind as preceding the event which we afterwards know has occasioned it? The least such facts show is

that we can have no more ground for excluding future instants from the moment of experience than we have for excluding past.

I will now try and present the problem of the duration of the moment of experience in complete dialectical form. The concept of duration has formal diversity or difference within it. This difference consists of two elements, past and future, each of which in the abstract and apart from the unity of the whole concept is a pure negation. The past is not, the future is not, and all that is not past is future, and all that is not future is past, there is no present. The concrete concept in which these contradictory elements are synthesised is the moment of experience. The formal problem therefore may be solved in the manner of the Hegelian logic. We have a dialectical triad exactly fulfilling the conditions of Hegel's first concrete category, in which becoming is the synthesis of being and nothing. Let us give it the full Hegelian form. The thesis is the duration we affirm to be present. The antithesis is the past and future of which all duration entirely consists, and both are opposite and contradictory to the idea of present. The synthesis is experience, every moment of which holds together the abstract contradictions of thesis and antithesis in a concept which is concrete, universal and real. But this is only a first degree of reality. The moment of experience implies more than bare union of the abstract contradictions, past and future, in a duration span. It implies a higher concept, that is the concept of a higher degree of reality, in which past and future are not independent elements, held together by the external relation of the apprehending consciousness. This higher degree of reality we find in the concept of activity. The moment of experience is the moment of conscious activity. In the concept of activity, past, present and future are a systematic unity, essential elements of an organic whole. The elements are organically present in the whole, that is, the past is not merely past, it is contained in the present, and the future is not merely future, it is being fashioned in the present. Past and future are therefore

in the concept of activity no longer abstract contradictions, but essential to the unity of the concept. Before I attempt to point out the further implications of the concept of activity I will consider the second problem I indicated, that which concerns the quality or matter of the moment of experience. as distinct from its quantity or form.

IV. *The Quality of Experience in the Moment of Experience.*

The moment of experience is one of a series of moments. We distinguish it from the past moment we remember and from the future moments we imagine. So viewed, it appears to us to endure so short a time that we find it practically impossible to realise that it is, before it has already passed into the series of moments which can only be remembered. Yet the fact is that as experience the moment is continuous, it is only from the standpoint of its content that it is for ever ceasing and for ever being renewed. The objective mark of the moment of experience is therefore the special nature of the content. It is only in the moment of experience we have the kind of knowledge we call sensation. Every one recognises it and knows that it is different from every other kind of knowledge whatever. All knowledge is for the subject of experience within the moment of experience, even the kinds of knowledge we call memory and imagination, but the objects to which memory and imagination or fantasy refer are not within the moment of experience as the objects of sensation are. The object present to the mind in sensation is therefore named by some philosophers the sense-datum, and the moment of experience is defined by them as that portion of time during which the objects of knowledge are sense-data. Let me quote Mr. Russell's "definition" of the "specious present" in the article to which I referred above. "The 'specious present' of a momentary total experience is the period of time within which an object must lie in order to be a sense-datum in that experience."

The problem then is this: Are sense-data objects in their

own right, objects which stand to the mind in a relation of direct acquaintance, and is it these objects which give to the moment of experience its privilege? Or, is it the nature of conscious activity, the nature of the mental grasp or apprehension of reality, in a word, the nature of life, which gives to the moment of experience its special character of unmediated reality? According to one view sense-data are certain definite objects which at a certain moment are or may be present to a mind, and the moment we call now, or the specious present, is distinguished from other moments before and after, by the fact that it is the only moment in which sense-data are so present. We need not object that the moments are described in spatial terms, there is no other way of expressing the meaning, for in this view sense-data are not events which occur, but objects which appear. The opposite view is that sense-data have no independent status: they cannot be treated as a class of entities separable or distinguishable from the moment of experience as its contents.

Let us be clear, too, as to what the problem is not. It is not the question of the real existence of physical objects, nor is it the question of the validity of the inference from phenomena to a cause of phenomena. It is not, that is to say, the question of the independent existence of the objects or material things which physical science is supposed to assume, nor is it the question whether the fact of sensations involves the concept of an independent cause of sensations. Sensation so far as we are concerned is ultimate fact, it supposes a sensing mind and a sensed object, these are part of its notion but it does not necessarily suppose that either mind or object are anything at all outside or independent of the sensation.

The distinction of the mind from its objects is, however, held by many philosophers to imply and even to establish an essential and fundamental difference between two classes of entities, the mental and the non-mental. It is a widely accepted principle and is often treated as a kind of postulate or

axiom of philosophy laying down the conditions on which subsequent analysis must proceed. I do not accept it. I do not regard the distinction mental and non-mental as an ultimate distinction nor indeed as a true philosophical distinction at all. It is a convenient and necessary distinction in physical science and in psychology but it has no place in a metaphysical theory. To admit it as a fundamental distinction of philosophy or to be satisfied with it as a final result of philosophical analysis seems to me equivalent to declaring the impossibility of a metaphysic of experience. The argument on which this doctrine from which I dissent is grounded, as I understand it, is as follows. Knowledge is a relation. The knowing relation implies subject knowing and object known. Therefore in the very affirmation of knowledge is involved a distinction of act and content; on the one hand we have the act of sensing, perceiving or conceiving, on the other that which is sensed, perceived or conceived. The sensing, perceiving and conceiving are then classed together and named mental, and the sense-datum, the percept and the concept are classed together and named non-mental. It is then argued that the mental class might be supposed absent from or removed from the world altogether, which would still be a world—at least, the non-mental class would subsist unaffected as regards reality, though, in the absence of knowing relations, unknown. This appears to me to be the argument on which most modern realist theories repose. The non-mental is named physical and what Berkeley called the perceptions of the mind are now declared to be the physical elements out of which the universe is constructed, and we are left wondering why the new realisms are so like the old idealisms. I do not know that anyone has yet argued the converse, though it would seem to follow, namely, that the non-mental class might be supposed absent or removed from the world, leaving the mental class subsisting unaffected, a world of acts of knowing with nothing to be known. I dissent from the view altogether. For me the fundamental distinction implied

in knowledge is the distinction between life and consciousness. The ultimate concept of reality in my view is the concept of life. If this can be established no one can then deny that a metaphysic of experience may be possible, for in the moment of experience, life and consciousness are one.

Let us then consider the quality of the moment of experience, sensation. If we analyse sensation into act of sensing, sense-datum, and relation of acquaintance; or, into subject-mind, object-datum, and knowing-relation; or, in any way which enables us to treat the sense-datum as constant and the relation as variable, we have a psychological difficulty which it is impossible to ignore. This is that the variety and multiplicity of sense-data, and their quality or character in the moment of experience, are not due only to the variety, multiplicity, and character of the sense-excitations, and the multiplicity is not only due to the amount of clock-time the moment covers; there is a qualitative and quantitative difference in sensations themselves depending on the nature, organisation, situation, and special function of the sense organs. To the ordinary view this offers no difficulty, but on the other hand serves to explain many facts. We classify sensations by their source in the different sense-organs before we classify them by what we may call their apport. But the apport is everything, is fixed and absolute, if the sense-datum is constant, and independent of the act of sensing.

There is a still greater difficulty for the view that sense-data are constant, in the fact of attention. The mind can be attentive or inattentive to its sensations in any degree. I may listen to what someone is saying, my eyes the while fixed on his gesture and action, and be wholly inattentive to what I am seeing and attentive only to what I am hearing, or wholly inattentive to what I am hearing while attentive to what I am seeing, or I may be actively attentive to both at once. In fact I can turn my attention off and on, I can concentrate it on one minute sensation or expand it to take in the whole

range of my senses at once, and all within the moment of experience. How am I to express all this if I take the standpoint of objective sense-data to which the relation of the mind is acquaintance? A sense-datum can admit no difference of degree, nor yet can the relation of acquaintance. But attention introduces an infinity of degrees in my actual sense-data. The difference between attention and inattention will, on the view I am considering, have to be explained away as an illusion or subjective appearance, for the difference apparently due to attention must be an actual difference of sense-data themselves.

This leads me to my chief criticism of the sense-data theory, I mean the theory that a sense-datum is constant. If we adopt it we cannot possibly explain the perception of change, and we must suppose that what we perceive and call change is not what we conceive change to be but an illusion produced in us by the succession of sense-data. What we suppose to be change must really be the simultaneous sensing of sense-data which are themselves successive. And there is another fact which we cannot explain on this theory, the special privilege which attaches to the moment of experience. This moment stands out in our lives not only as possessing special and overwhelming importance to ourselves because in it we are acquainted with the objects which out of that relation we can only describe, but because into that moment is crowded the whole of reality. Outside that moment there is only what did exist or will exist, nothing that does exist.

These two facts, that in the moment of experience we perceive change, and that into this moment of experience in some way not only our own reality as minds knowing but the reality of things known is gathered, demand of human thought that it should seek to discover their metaphysical ground. They present to us a problem which can only be solved by the method of philosophy. This method is the analysis of the concept to discover its implications, then to follow those

implications into the system which gives us their reality in a higher degree.

We have seen that in the concept of activity the contradictions to which the duration of a present moment give rise are overcome in a systematic unity. Activity implies that past and future are together in organised union in the present. The moment of experience is the moment of activity. The concept of activity implies change. Change is not mere succession, the alternation of existence and non-existence, it is becoming, the becoming actual of what was potential. Change implies continuity. The new creation which constitutes it is the new form or order which the old undergoes. "The old order changeth, giving place to the new." Where there is real change, existence and non-existence have no place as categories of reality. The categories of change are making, acting, doing, opposed to which are made, acted, done. If reality be change, reality cannot cease to be, cannot give place to nought. The absolute expression of it is "making itself." Past and future are therefore no longer the distinction of what is not from what is.

We have an illustration, we might even say an exact application, of this metaphysical doctrine in the scientific concept of energy. Energy is in modern scientific theory the ultimate concept of reality, and the law of its conservation is not a description of facts nor is it the formulation of a probability based on the observation of invariable sequence. So far as empirical facts are concerned, they are diverse, disconnected, independent of one another. We can classify them more or less conveniently; group them into the phenomena of light, heat, electricity, magnetism, etc.; we can even, by observing sequences, predict them with more or less confidence; but all that experience warrants us in saying is that they are or that they are not. Physical science has replaced this idea of existence and non-existence with the concept of a reality which cannot not-exist, and which

preserves its identity throughout complete change of its form or order. When energy completes its cycle of change it does not cease to exist, it passes from the kinetic to the latent order. It may be said that this concept of conservation is not a fact but only a convenient generalisation. It is a generalisation, however, implied in the very possibility of physical science, and which cannot be even called in doubt without destroying the basis of scientific explanation.

Strict empiricism would in fact as effectually destroy physical science as it destroys philosophy. Observation of fact which abjures implication is sterile. So in philosophy, if we be content to conceive reality as a panorama or moving procession and the mind as a spectator contemplating the passing show, then the moment of experience has no intrinsic privilege; its apparent privilege is due to the fact that it happens to be the moment at which we are spectators, and our sense-data are what happens to be offered to us at that moment. But conceive reality as change and one moment is at once raised to the privilege of actuality with respect to every other moment.

The concept of change appears to me, therefore, to be of capital importance in philosophy. If change be original, that is to say, if change be the necessary logical antecedent of things, and if fixity in every form be the work of the mind, and if it be this original change which we perceive in the moment of experience, then both the nature and the form of that moment are made manifest. The moment of experience is the moment of activity, activity is the moment of change, change is the continuity of the past in present creation. Change is not succession but self-making. The apprehension of change in a moment of consciousness implies therefore the holding together in that moment past and present, and past as present, an activity of self-making or creation. This is the concept of life.

And this is the highest concept we can reach, for in the concept of life we grasp intellectually the reality we know intuitively. In the moment of experience we live as well as

know, and we know in living the very reality we objectify in knowing. The whole process of living thought, as distinct from the life itself, is the making explicit, the expressing in the concept what is implicit in the intuition. But as intuition life is all-inclusive, whereas the moment of experience is essentially exclusive. It is an infinitesimal fraction even of our individual life, whatever be its relation to universal life. The moment of experience is the concentration of consciousness on a small and quite disproportionate part of the full reality of the individual life of the conscious experient. What is the principle of this concentration of consciousness on a fraction of the whole, or of this contraction of all reality into a moment? The moment of experience is, in an expressive phrase we owe to M. Bergson, the moment of "attention to life."

The moment of experience is for us a moment of consciousness. When we speak of our conscious moments we distinguish consciousness from life, and consciousness then appears to us as a form of vital activity, a phenomenon which supervenes on life itself. The moment of consciousness is not a moment of life, that is to say, life is not a multiplicity of moments or composed of momentary elements, some conscious, some not. An infinitely small portion of the individual life comes within the moment of consciousness when compared with the duration of memory and the extension of sense perception. In the activity of attention consciousness moves over a wide range of past and present, lighting up in its brief duration some selection from the memories of past experience, some selection from present sense experience. Life is itself infinitely wider than consciousness, and the moment of consciousness is not the moment of life but the momentary consciousness of life.

If then we recognise that consciousness has supervened on life, and ask ourselves what is its nature and its relation to vital activity, two views are possible. We may suppose that consciousness is just awareness, and that the life which has acquired it has thereby endowed itself with a power of

contemplating and representing itself and its environment. In that case the momentary character of consciousness will be altogether mysterious, a fact to be accepted but impossible to understand. On the other hand, we may see in its momentary character its true significance. Consciousness is momentary because it arises at the call of a certain kind of activity. It is as it were a light shed on the focus or centre of activity to serve the action going forward. The terms we have to employ—light, focus, centre, etc., are of necessity metaphorical. Consciousness is the unique experience we know as awareness. There is nothing contradictory in supposing that our whole life with its continuous past, its full present, and its prospective range and activity might be through and through conscious, an awareness not concentrated into a moment, but such consciousness would not serve the mode of activity for which our whole organisation seems contrived. This organised activity requires that all which does not interest the particular action we are engaged on shall be shut out from our consciousness in order that attention at the centre may have full illumination. Biology confirms this. It shows us, throughout the whole range of life, species organised for characteristic action within a definite zone or sphere of activity. Every living creature is fixed in an attitude of attention to life, an attitude bending it forward to the action which is forming before it, closing behind it, and shutting out from its consciousness whatever is not calculated to serve or to contribute to the efficiency of its special activity. To the extent that its action is chosen and free the life must become conscious, and the mode of this consciousness determines the range of its freedom, and the form or mode of the activity conditions the objective order of reality in the experience.

We are able then to deduce the momentary character of consciousness from the nature of life. But on the other hand our whole knowledge of life rests ultimately on our experience in the moment of consciousness. It is only, therefore, by the

implication of the concept of a moment, itself an actual experience, that we reach the concept of a reality wider and more fundamental than the moment, yet identical with it. This reality is life. It is the philosophic concept of an original activity, not conditioned by the moments of experience, which are the form in which it comes to consciousness, nor by the content of those moments, that is, by sense-data which are the objective aspect of the experience, but itself conditioning the order of experience and the content of experience by the mode of its own activity. We reach the concept by the same process which led Kant to affirm the reality of the thing-in-itself, but unlike the concept of Kant it is not a reality by its very definition unknowable, on the contrary it is known by acquaintance and its form is not arbitrary but deduced from its nature.

There is an alternative. Many philosophers hold, and they may be right, that what is implied in the moment of experience is not an original activity creating an objective order, but the independent reality of an objective order. The moment of experience in this view brings the mind into direct relation with the real continuity of a spatial and temporal order and with an arrangement of physical elements within that order. This seems to agree with pre-philosophic common sense. It is well, therefore, to follow out the logical consequences of such a theory.

In order to appreciate this alternative theory let us briefly recall the fact. We all acknowledge that normal experience consists of a present moment which endures for a period variously estimated to occupy from 3 to 12 seconds of the time we measure by our clocks. Within that moment we discriminate spatial extension and temporal duration. There is a limit to the discrimination, and many laboratory experiments have been devised for the purpose of determining it. It is said, for instance, that for the visual sense the extreme discrimination is an interval of $1/500$ of a second. The character or quality of the moment of experience is sensation. It is only in that

moment that we have sensation, though we may have in it combined with present sensation memory-images of past or of anticipated sensations. The whole content of that moment is distinguished as present experience from what is past and future, yet within it, though all content is present, there is a distinction of before and after. This in general terms is the scientific and psychological description of the fact we name the moment of experience. What, then, is the problem? The problem is the nature of the unity of the moment and of the continuity of the elements we discriminate within it. If the reality be the three to twelve seconds of mathematically measured instants and the definite number of sense-data this period covers, then the moment of experience is nothing more than the limit of the mind's span of an objective succession. The continuity of that moment will be the mathematical continuity of points in a line and instants in a succession. The continuity of an extension in mathematics means that between any two points another can be found, so that there is never a next point to any point, and similarly the continuity of a duration means that there is never a next instant to any instant, but that between any two instants another can be found. What, then, is the logical consequence of adopting this view? It is that there can be no numerical identity between the moments the series or succession of which corresponds with our lives. Mr. Russell has shown, it seems to me very convincingly, that this conclusion follows, and he boldly accepts it. "The real man, I believe, however the police may swear to his identity, is really a series of momentary men, each different one from the other, and bound together not by a numerical identity, but by continuity and certain intrinsic causal laws. And what applies to men applies equally to tables and chairs, the sun, moon, and stars."*

* Article in *Monist*, July, 1915.

This then is the position to which the alternative theory leads. It may be true. It was, I suppose, practically the position of Descartes, of Malebranche and of Berkeley, and it did not dismay them, but then they could fall back on the philosophical concept of a deity. Each perishing instant called forth in their view a new act of creation by God. But there is no place in present-day philosophy for such a concept. It is not on this account that I reject it, but because mathematical continuity and scientific causality seem to me wholly insufficient factors to account for the living activity I am directly conscious of in the moment of experience.