THE PHILOSOPHY OF BERGSON

BY

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INTRODUCTION.

Henri Bergson was born in Paris, October 18, 1859. After a brilliant career at the Lycee Corot and the Ecole Normale he was given the chair of philosophy at the Lycee d' Angers at the early age of twenty two. His life outwardly has been uneventful and purely academic. His brilliant scholarship and genius rapidly gained him renown, so that in 1900 he was appointed to the chair of philosophy in the College de France. Here, with the exception of breif intervals, he has remained up to the present date. In 1912 he was Gifford lecturer at Edinburgh.

The exposition of Bergson's philosophy is contained largely in three large volumes, "Les Données Immediates de la conscience," published in 1889, "Matiere et Memoire", published in 1896, and "L'Evolution Creatrice," published in 1907. The English translations (Time and Free Will, Matter and Memory, Creative Evolution) were published in 1910 and 1911. With the exception of numerous articles written for journals and periodicals, nothing further appeared until the publication of "L' Energie Spirituelle", or Mind-Energy" in 1919. Of Bergson's smaller articles the most noted are "Laughter; an essay on the meaning of the comic", and the "Introduction to Metaphysics", in which Bergson explains the intuitive method of philosophy.

During the earlier part of his career Bergson was attracted very strongly to the sciences. In particular was he interested in the newly-born sciences of biology and psychology. Strange as it may appear from his later views, he was in his earlier studies profoundly influenced by the scientific concepts of Spencer and Huxley. The story of how Bergson broke away from this scientific materialism and became its most ardent foe is the story of the development of the Bergsonian philosophy. However to say that Bergson became the strongest opponent of scientific materialism is not to say that Bergson is inimical to science. Indeed Bergson has gone

far to establishing the truth contained in scientific concepts because he has at the same time shown the limitations of science. There is a certain profound and significant relation between Bergson's philosophy and the sciences which it is necessary to grasp before we can understand the full significance of Bergson's philosophy. This relation is admirably pointed out by Professor Lindsay in a comparison between Bergson and Kant.* Bergson performs for the biological sciences something of the same service that Kant performed for the mathematical and physical sciences. Kants' philosophy is based on and profoundly influenced by his conceptions of science.

Kant was struck by the contrast between the assured and certain results of science and the confusion and uncertainty of the results of metaphysics. The Critique, therefore, was an endeavour to ascertain the conditions on which the success of science depended, and to find out how far the same concepts could be applied in the realm of metaphysics. Kant succeeded in establishing the validity of scientific concepts, but only by imposing certain limitations upon them, that is he showed that they applied only to the world of phenomena, and not to the thing-in-itself. Now Kant derived his conceptions of science from the predominant sciences of his day, i.e. from mathematics and physics. The mathematics was the Cartesian mathematic, while the physics was dominated by the Newtonian concepts. To be "scientific", therefore, meant a rigid application of the Newtonian and Cartesian concepts to all phenomena.

With the rise of the modern biological sciences, however, science has found itself confronted with new problems. In dealing with life and with organic forms, science seems no longer to possess that same certainty and surety with which it dealt with inorganic forms. Science attempts to apply to organic forms the same universal mathematic as it applied to inorganic forms. If, argues the scientist, the laws of mathematics and physics be

* THE PHILOSOPHY OF BERGSON, by A. D. Lindsay.
in Introduction.

truly universal, then the organic sphere must be merely an extension upon more complex lines of the inorganic. The biological sciences lack the authority of the older physical sciences only because of their youth and the insufficiency of their data. The biologist, therefore, by further research in physico-Chemistry, has endeavoured to supplement his scanty store of data, in the hopes that by so doing he may gain for the biological sciences the same authority that the physical sciences possess.

Bergson's whole philosophy, however, is an endeavour to show that by an attempt of this kind the biologist and the psychologist, also, defeat their own ends. Bergson's work is really a continuation of Kant's. Kant asked and endeavoured to answer the question, How are the physical sciences possible, while Bergson's philosophy is an attempt to answer the question, How are the biological sciences possible? Bergson, however, endeavours to establish the possibility of the biological sciences not by an extension of the older principles, but by the use of a new principle which he claims has been overlooked. He finds that the basis of his philosophy in an uncriticized assumption, namely, the assumption that existence in time is similar to and can be analysed under the same concepts as extension in space. That existence in time is a concrete reality, in no way comparable to extension in space is the new fundamental principle which Bergson would apply to the problems of the biological sciences. With the aid of this principle he attempts to show that knowledge of life processes is possible. By thus establishing the possibility of the biological sciences he likewise shows the possibility of a new metaphysics. A metaphysics based on this principal, claims Bergson, can ultimately attain to knowledge of reality. Knowledge, therefore, is not limited to phenomena only, but can ultimately reach down and bear upon reality itself.

Bergson's work may be classified under two headings, the critical and and positive or constructive work. "Matter and Memory" deals with the fundamental concepts of psychology, "Creative Evolution" is largely a

criticism of the concepts of biology, while "Time and Free Will", endeavours to find solution to the question of Freedom in an uncriticized assumption. There can be little doubt as to the great value of Bergson's critical work. The value of his positive work is much more difficult to ascertain.

In the following analysis of Bergson's philosophy, I have confined myself largely to the three volumes which constitute the essence of Bergson's philosophy, namely "Time and Free Will", "Matter and Memory", and "Creative Evolution," and have devoted a chapter to each of these. A final chapter is reserved for criticisms of Bergson's philosophy and an appraisement of his work. This thesis by no means pretends to any exhaustive analysis or criticism of Bergson's thought; rather is it an attempt to understand and appreciate as fully as possible the Bergsonian philosophy, and to realize its relation to the modern tendencies of thought.

THE PHILOSOPHY OF BERGSON.

Chapter I. Time and Free Will.

Introduction - the Bergsonian method - Heraclitus - all is change - Bergson and mysticism.

General thesis and summary of "Time and Free Will" - nature of conscious states - extensity versus intensity - quantity versus quality - quantitative measurement rests on superposition - superposition of psychic states impossible - intensity not a magnitude but purely qualitative - Bergson's conception of intensity -
Argument against psychological "scales" - Weber's Law.

Multiplicity of conscious states - principles of number - Bergson and Kant - number a spatial series - physical and psychical multiplicity - time - physical time and concrete duration - time of science artificial and conventional only - duration purely qualitative.

Mechanism and dynamism - physical and psychological determinism - assumption underlying all forms of determinism - concrete duration the true basis of freedom - conclusion.

"Les Données Immédiates de la Consciense " or "Time and Free Will", to give it the English title, was published by Bergson in 1889, and translated into English in 1910 by Professor Pogson of Oxford University. Professor Pogson's translation gives a very clear and accurate transcription of the original while retaining at the same time something of the grace and brilliancy of the original text.

The subject of "Time and Free Will", is, as its English title implies, connected with the subject of Free Will. However, to limit the subject to this only, would be to give a very inadequate idea of the real nature of the essay. The real thesis of "Time and Free Will" is not the subject of Free Will, but rather the method by which Bergson arrives at his conclusions concerning the subject of Free Will. We have in this essay, the

first presentation of the famous Bergsonian method. The application of this method to the problem of free will, is interesting as an application of the method. For the reader who is endeavouring to arrive at an understanding of Bergson's philosophy the real worth of the essay lies in the Bergsonian method rather than in the problem of free will itself.

Before entering upon a more detailed analysis of "Time and Free Will," it would be well to set forth in as brief a fashion as possible, something of what is meant by the Bergsonian method. We may sum up the new method in the one word, "duration". This is the key-word, the understanding of which unlocks the portals to the whole of Bergson's philosophy.

Heraclitus twenty-five hundred years ago took for his starting point the maxim, "All is change". Reality is like a river, whose waters are never for two consecutive moments the same. "We cannot step into the same river twice", said Heraclitus, and his eyes as he spoke were opened to a vision of reality caught by few. This conception, fraught with mighty and eternal meaning, he sought to entwine within his grasp, but the mystic shadow lay beyond the realm of words.

Something of the same vision which enriched the mind of Heraclitus, and earned for him the epithet of the "dark philosopher" has in our own day been grasped in some degree by Bergson. That time is the concrete stuff of reality is the ever recurring refrain throughout the whole of Bergson's philosophy. This common vision of the reality of time and change, constitutes the link of kinship between Heraclitus and Bergson. However, beyond this similarity of vision there is little to offer in the way of comparison between these two philosophers. There is nothing ~~in~~ of the "dark philosopher" about Bergson. Bergson is sometimes referred to as a mystic but there is nothing of mysticism about the writings of Bergson. His conceptions are embodied in a remarkably lucid and brilliant style, and his ideas are worked out by reasoning as purely intellectual as can be found anywhere in modern philosophy. Reared in an age when the scientific

materialism of Spenser and Huxley was at its height, Bergson has had the great advantage of a training in pure mathematics, and in the sciences, both physical and biological. Bergson is quite at home among the fundamental concepts of mathematics and the sciences, while in the realm of psychological research, he holds a distinguished place among modern psychologists. To class Bergson as a mystic therefore is as misleading as it is incorrect. The reason for this misconception lies probably in the fact that Bergson believes that reality can be known through channels other than the intellect.

The general thesis of "Time and Free Will" is given by Bergson is his preface to that volume:- "What I attempt to prove is that all discussion between the determinists and their opponents implies a previous confusion of duration with extensity, of succession with simultaneity, of quality with quantity: this confusion once dispelled, we may perhaps witness the disappearance of the objections against Free Will, of the definitions given of it, and in a certain sense of the problem of Free Will itself."

The confusion which has clouded both sides of the problem has been due to an imperfect understanding of the real nature of consciousness. The mistake that both determinists and indeterminists have made, has been to treat conscious states as though they were on a par with external phenomena. The assumption that mental phenomena can be treated in the same fashion as physical phenomena is the fallacy which Bergson attempts to dispel. This confusion can only be dispelled by a careful and introspective inquiry into the real nature of consciousness. When such an inquiry is made, Bergson claims that the real basis of determinism is swept away. To bring the mind under the same laws and concepts that hold in the external world is to translate consciousness into terms of space. The main thesis of "Time and Free Will" therefore, is to show that existence in time is of a nature totally different from existence in space, and that it is only by a confusion of these two realities, that the problem of Free Will has raised

so many difficulties in modern philosophy.

The first two chapters of "Time and Free Will" therefore, take the form of an inquiry into the nature of conscious states. The first chapter deals in particular with the intensity of conscious states. Can we subject the intensity of these states to quantitative measurement or must we conclude that intensity is in itself a purely qualitative matter ? Bergson endeavours to show that quantitative differences apply only to magnitudes, or, in a word, to space. Consciousness and the intensity of conscious states is purely qualitative. They can only be measured when they are projected into space, but it is then not pure conscivusness that is submitted to measurement, but only the externalized or spatial symbols of conscivusness.

In the second chapter Bergson passes from the consideration of separate conscious states to the multiplicity of conscious states that are presented to the mind. He finds that the chief source of the difficulty lies in the confusion of two distinct kinds of multiplicity: quantitative or discrete multiplicity, and the purely qualitative multiplicity which constitutes the real nature of duration. The former, according to Bergson, is a purely spatial concept and involves an intuition of space. This sort of multiplicity is spatial rather than temporal. Bergson places himself in this respect in direct opposition to Kant, who regarded number as a succession in time rather than in space. Duration, on the other hand, presents a purely qualitative multiplicity, an interpenetration of conscious states in which there is succession without distinction, a series of states which melt into one another and present no discrete parts which can be subjected to measurement.

In the third chapter these results are applied to the problem of the Will, and Bergson shows that former difficulties associated with the problem have been due to the treating of conscious states under conceptions which apply only to the external world. Once we abandon this conceptualist method of dealing with consciousness, the difficulties dissolve of themselves and

the problem of Free Will becomes illusory.

What, then, is Bergson's answer to the problem of Free Will ? The answer lies in a new conception of the idea of Freedom rather than in a solution of the older statement of the problem. Freedom, according to Bergson, is a living vital reality, but it cannot be brought under any conceptualist definition. Indeed, it is indefinable. The moment we try to define it, we fetter it and find that what we have caught is no longer freedom but necessity. Our quarry is changed by the very act of definition, from a living vital force into a dead inert thing. Why is this so, we may ask ? Because, answers Bergson, freedom is the hand-maiden of Time, of living, ever-changing duration. When we attempt to define it we interrupt it in its flight; we spread it out in space, so that we may observe its parts in juxtaposition and clothe it in definite words. But by this translation from time into space, we have robbed freedom of all that was living and vital therein, so that we have left not freedom but an iron-bound necessity.

It will now be necessary to examine in somewhat more detail, the definite arguments which lead up to these conceptions of consciousness and of freedom.

The main thesis of the first chapter of "Time and Free Will", as we stated above, is concerned with showing that quantitative differences apply only to spatial magnitudes, and not to the intensity of conscious states.

The fundamental principle upon which all quantitative measurement of spatial magnitudes rests is that principle whereby the object to be measured can be superimposed upon the object with which it is to be compared. Whether such superposition actually takes place in any individual case is of no moment, spatial measurement depends on the fact that objects in space, can, in a final analysis, be shown to be equal or unequal by this method. The whole conception of magnitude arises out of this principle whereby the space occupied by one object, can by superposition

be made to contain the space occupied by another object. That space which contains the other we call the greater space.

The terms "greater" and "less" have no meaning apart from this potential ability whereby two objects may be superimposed upon one-another.

Let us apply this fundamental principle of magnitude to the measurement of conscious states. We are immediately confronted with the question, How can any conscious state be said to contain any other conscious state ?

If we cannot superimpose one state upon another, the terms greater and less have no meaning in relation to two such conscious states. A definite series of intensive states is, therefore an anomaly, since such a series would imply that the states contained therein were ultimately capable of being superimposed upon one-another. The idea of intensity as a magnitude gains its plausibility from the fact that we are ever apt to derive our conception of magnitude from the external causes of a sensation, and apply it in a quantitative fashion to the sensation itself.

We may divide sensations into two classes: first, those sensations which may be called to some degree external, and, second, those deep-seated psychic states, which are purely intensive. It is these latter states that seem to be the most nearly purely qualitative. Let us consider such a state as a deep-rooted desire. This would serve as an example of the deep-rooted purely qualitative states. Why are we inclined to attribute to such a state the quantitative conception of intensity ? Such a desire as it grows more and more intense pervades and influences an increasing number of psychic elements in our consciousness. Such a desire is strong or intense in proportion to the extent to which all our ideas and sensations are modified by this pervading desire. It is by the number and extent of these modifications that we judge the intensity of the psychic state. The increasing intensity of any state of consciousness lies, therefore, in the constant assimilation of new elemen ts brought under its sway. Each new element as it enters into the permeating desire, slightly alters the quality of the conscious state to which the desire corresponds. What seems to be therefore,

an increase in the intensity of the conscious state is really nothing more than a change in the quality of that state. It is this qualitative progress arising out of the assimilation of new elements, that we interpret as an increase in the intensity of the state. If, therefore, we are to regard such changing states as a series, we must regard them as a series of constantly changing states, rather than as a series of increasing magnitude.

The deep-seated psychic states, such as joy, pity and love, are far removed from their external causes. Physical changes that accompany the greater number of emotional states alter to some degree our estimate of their intensities. Muscular effort, to take the most outstanding example, gives rise to sensations which correspond very closely to those physical changes actually taking place in the muscular tissue itself. Here surely it is said, are sensations which can be subjected to quantitative measurement, and much work has been done by modern psychologists in attempting to measure their sensations. However, difference which in these sensations seem to be so purely quantitative can in the final analysis be resolved into qualitative differences. The total sensation received is the resultant of a large number of sensations arising from the number of muscles affected. What seems to be an increase in the intensity of the resulting sensation, is really a series of qualitative differences, derived from sensations arising from the increasing number of muscles affected. What is given in consciousness is a sensation continuously differing in quality. It is this qualitative difference that our minds, accustomed to thinking in terms of spatial magnitudes interpret as a quantitative system of sensations rising in a series of increasing magnitude.

The problem which Bergson here lays his finger upon, touches immediately on the deep-rooted antithesis between physical and psychical states. Any attempt to correlate the psychical with the physical is sooner or later brought face to face with this antithesis. The psychical counterpart of any physical or chemical change in the cortex in no way resembles the actual molecular movement taking place in the brain. This molecular

movement retains no consciousness of itself as such, and it can in no way be correlated with the psychical change taking place in consciousness. The absence of any common factor between these two antithetical aspects renders the measurement of psychical changes in terms of their physical counterparts impossible. However, so accustomed are we to thinking in terms of spatial counterparts to psychical phenomena that we constantly interpret the qualitative differences of psychical states as quantitative changes, and attempt to measure them as such. In other words, we make of intensity a magnitude rather than a quality.

Bergson takes exception to the experiments of Fechner and Delboeuf, in which these two eminent psychologists have attempted to establish scales for the quantitative measurement of sensations. These scales are based on the assumption that the sensations themselves can be measured in terms of their physical counterparts, an assumption which cannot be justified. Weber's Law is based on a similar assumption. Weber's law may be stated in the form of a proportion, thus:

$$dE : E :: dS : S,$$

where E represents the physical stimulus, and dE the smallest change in the physical stimulus that can be recognized in perception, and where S represents the corresponding sensation and dS the corresponding change in sensation. We can derive no relation between E and S except by an unjustifiable assumption. We have a physical series represented by the ratio dE : E, and a psychical series represented by the ratio dS: S. Between these two series there exists no common factor through which these two series could be correlated.

The fallacy underlying all attempts to subject sensation to experimental measurements lies in the assumption that two mental states can be equal while not identical. Physical measurement is only possible when we strip from all terms their qualitative differences, and leave only terms of pure extension, which can be superimposed upon one another. However, these qualitative elements, which we eliminate for convenience in physical

measurement constitute the main essence of psychical states, and cannot be be eliminated without destroying all that is essential in these psychical states.

We conclude therefore from the foregoing analysis that "there is no point of contact between the unextended and the extended, between quality and quantity. We can interpret the one by the other, set up the one as the equivalent of the other, but sooner or later, at the beginning or at the end, we shall have to recognize the conventional nature of this assimilation";

In the first chapter Bergson treats states of consciousness as isolated from one another and in so doing found there could be ("Time and Free Will", page 70, Authorized Translation) no common ground between such phenomena and their physical counterparts. Any attempt to define or measure conscious states in such external terms, must inevitably be based on arbitrary symbols or conventions which can have no real meaning when applied to the psychical states themselves.

The nature of the problem now leads us into a study of the multiplicity of consious states as they unfold themselves in what Bergson calls, "pure duration", What form does the stream of consciousness assume when we consider it not as projected into a conventional spatial extensity, bit as it reveals itself as a system of purely qualitative change ? This is the main point we have now to consider, In what sense can we speak of a multiplicity applied to a series of purely qualitative changes, bereft of all spatial extensity and therefore of all quantitative magnitude?

The above question leads inevitable to a consideration of the fundamental principles of number. Since the time of Kant number had been considered in the light of a temporal series. Kant argued that number involved a mental synthesis of the successive acts of consciousness. But while this may be true so long as we are only concerned with counting up to a certain number, yet the actual apprehension of number itself involves something more than this . The apprehension of the sum itself is impossible except as a

"Time and Free Will", Page 70. Authorized translation.

simultaneous perception of the successive steps that have led up to the sum. Now a simultaneous perception must involve a visual image of the separate elements in the sum set in juxtaposition in space. We must conclude therefore that number is a series of elements simultaneously perceived against a homogeneous spatial background, rather than a series of successive mental acts in time.

We have mentioned above that Bergson distinguished two distinct types of multiplicity, the first being that of a series of concrete objects to which the conception of number is immediately applicable while the second is that multiplicity exhibited by a series of conscious states unfolding themselves in pure duration. This latter type of multiplicity cannot be regarded as numerical in any quantitative sense, unless we unconsciously translate such conscious states into terms of their physical counterparts. We may apply the conception of number to the symbolical representation of these states in their spatial terms, but such a conception is purely artificial and is conventional only. All our ideas of succession in time resolve themselves in a final analysis into juxtaposition in space.

We are forced, therefore, to give up the ideas of succession and order as integral elements in time. When we regard time as pure duration such elements disappear of themselves, and we have left purely qualitative change. The introduction of order into any series of terms involves two mental acts : We must first perceive the separate terms as units, and then compare these units with one another, and with the total aggregation of units. In other words, we must perceive them both as wholes and as individuals in the whole. To compare is to set side by side and perceive simultaneously the relation of part to part and of part to the whole. To perceive a succession of mental states as an order in time, therefore we must regard the series as though perceived in simultaneity, which implies, of course, that we must project them out on to a homogeneous spatial background.

An illustration may make our meaning clearer. Let us suppose a one-dimentional being to be moving continuously in a straight line. His

consciousness of his own movement would consist only of a consciousness of pure change succeasion. However, if we were to project him to a point somewhere above his straight line, he would straightway perceive his former movement not as pure succession alone, but also as movement in a straight line. By lifting him out of his former one-dimentional path we have endowed him with a conception of three-dimentional space, and by projecting his movement against this newly discovered space, he at once perceives his former movement as movement in a straight line. He would now resolve this movement into a succession of points placed in juxtaposition in space. However, if he wishes to recover the true conception of movement as actual change or mobility, he must return to his straight line and experience once again the actual movement. We have here therefore an antithesis between the true consciousness of movement as pure change and succession, and the external perception of movement as projected against a homogeneous spatial background.

Similarly in our analysis of conscious states we place them side by side in an external order in time. But it is only by projecting these states against what really amounts to a spatial background that we perceive them as an order in time. When we project them in this way, therefore, it is only the spatial translation of pure succession that we perceive, and not pure succession itself. When we regard time as a homogeneous medium in which a succession of psychic states occur, we commit the fallacy of giving to time the attributes of space. We cannot attribute the least homogeneity to duration without unconsiously translating time into terms of space.

We must distinguish very carefully between that time wherein pure consciousness unfolds or that which Bergson calls pure duration, and the external time of physics and astronomy. The fundamental principles of science involves a conception of a time which shall be susceptible to measurement; or in other words a time which shall be absolutely homogeneous

in its nature. This latter homogeneous time, the time measured by our chronometers, is, according to Bergson, not real time at all, but only a spatial concept masquerading under the guise of time. The physicist defines time in terms of motion. Space time and motion are related in the fundamental formula:

$$S = vt,$$

where S is the space covered by a body moving at a velocity v, in the time t. Now if we ask the physicist to define time he puts his equation into the form of

$$t = \frac{S}{v}.$$

Time is now defined in terms of the space covered by a body moving at a velocity v, or if we treat S as a constant, then the time t varies inversely as the velocity v. If we now seek a definition of velocity or motion, the physicist cannot define it except as a reciprocal variant of the time t. His equalion therefore, is not a definition in any absolute sense,but only the statement of an artificially conceived relation between timeand motion suited to the needs of mechanics.

However, if, on the other hand, we observe the physicist in his actual work of computing the velocities of two moving bodies, we shall see that his actual method consists in a measurement of the space traversed by the two moving bodies, and a noting of simultaneities at the beginning and end of the two movements to be compared. The final numerical calculations may be performed immediately or at any future time, this is of no moment. The important point to observe in this connection is that these calculations represent nothing of the actual fact of mobility involved in the motion. The actual mobility is defined in terms of the space traversed, while the time element is resolved into a mere noting of simultaneities. Thus from time is stripped its essential quality of duration while from motion is eliminated the essential element of mobility. Only thus by eliminating pure duration from time and pure mobility from movement, can time and motion be dealt with by science.

We must inevitably arrive at the conclusion, therefore, that the homogeneous medium which science sets up in the guise of time is not pure duration at all but only an artificial concept invented to meet the needs of our spatial modes of thought.

However, these spatial modes of thought are not confined to the concepts of science alone. They go further than that and pervade the whole realm of thought, Our language is saturated with spatial concepts so much so, indeed, that we cannot express the facts of pure mobility and pure duration except in words that show a spatial origin and apply really only to extension in space. Before we can translate our actual conscious states into the medium of language, we must go through a process of solidifying them, dissecting them into discrete parts, so that each may be labeled under a separate name. Our real conscious states, however, are of an entirely different nature. They cannot be divided into discrete parts; they are vague, fleeting, and ever-changing, and they melt imperceptibly into one-another. Duration is a continuously changing quality and cannot be considered as an ordered succession in time. At all times, therefore, except when we attempt to set it out in space and clothe it in definite words, duration is perceived and experienced as a purely qualitative success, in which we can discover no quantitative elements.

The foregoing conclusions, derived from an analysis of duration and the nature of multiplicity, sum up in a general way the results of the psychological arguments found in the first half of"Time and Free Will"; Bergson uses these results in the latter half of the essay to throw a new light on the vexed question of Free Will. We must briefly examine, therefore, what bearing these psychological conclusions shall have on the question of freedom of the will.

The issue of the controversy between the determinism and indeterminism involves the wider issue between those two conceptions which we can apply to nature as a whole, namely, the mechanistic conception and the dynamic conception of the universe. Determinism, whether physical or psychological,

tends to emphasize the mechanistic nature of the universe, while indeterminism, necessarily involves as its fundamental basis, a dynamic conception of the universe.

Physical determinism is purely mechanistic in its conception of mind and matter. The adherents of this theory base their arguments or a rigid and mathematically accurate determination of the movement and position of every atom in the universe, and claim that could these be known at any given moment, the resulting configuration of atoms at any future time could be predicted with unfailing accuracy. Hence, therefore all movements of storms in the ocean must be determined and ~~therefore~~ it follows that all mental and conscious states must be likewise determined. This form of determinism, is, of course, based on the assumption of a complete and rigid parallelism between conscious and physical states. This assumption is based on a more basic psychological assumption, which we shall presently examine, and we find, therefore, that adherents of physical determinism are in the last resort compelled to give their theory a psychological basis.

The commonest form of psychological determinism is the so-called associationist determinism, which assumes that conscious states may be related to one-another as cause and effect. The assumption that conscious states can determine one-another in somewhat the same fashion in which a physical cause determines a physical effect, is the vital basis underlying all forms of psychological determinism. It is at this vital point in the theory of determinism that Bergson levels his attack.

If we apply to this assumption made by all forms of determinism in general the results derived from our former analysis of conscious states, we see at once that the crucial error made by the determinists is that of regarding conscious states as quantitative magnitudes, which may be subjected to measurement. We have seen, however, that the essentially qualitative nature of conscious states renders impossible any relation between these states based on spatial categories.

If we examine the determinist's method of predicting future conscious states, we see that it is based on the same conceptions that the physicist applies to a physical system. In other words, prediction in the physical sense can apply only to a system of points which can, theoretically at least, return to their original positions, and the whole system be identical with a previous system. It is because of this reversible nature of the physical universe, that prediction, in the physical sense becomes possible. However, this reversible nature belongs only to the external world. The very essence of psychical existence lies in its irreversibility. Never for a moment, for conscious beings can the stream of duration be halted or turned upon its course. For consciousness time is not a homogeneous medium, along which discrete states of consciousness may travel in either direction, but is rather a concret accumulative vital thing, a duration which constitutes the essence of psychical existence. Physical science is based upon a system from which concrete time or duration is eliminated. This elimination of quality and duration renders physical science and andall spatial measurement possible. Consciously or unconsciously the scientist has gradually eliminated the psychical aspect from external nature, and has brought the phanomena of nature under the workings of his formulae. Only thus has science made progress. However, if the scientist attempts to apply the categories of science to the concrete existence of consciousness he thereby creates an anomaly whereby the true basis of science itself must be destroyed. The scientist works with conventional forms. He is, however, ever apt to forget the conventional nature of these forms, and to attempt to make these artificial forms the fundamental reality. When he does this he harms the true conception of science, but in no way destroys the contrete reality of consciousness.

Duration is the concrete stuff of life. This is the basis of Bergson's argument, The determinist and psychologists in general have confounded this concrete reality, which is the only true time, with that other

spatial time, which is only an artificial conception, and which is in its final analysis, on ly space itself. Through this confusion the psychologists have inevitably been led to regard conscious states as a multiplicity of discrete states which can be broken up into parts and subjected to quantitative measurement. From this error there has arisen the further error of applying to conscious states the physical relation of cause and effect. This latter error results inevitably in determinism.

The problem of determinism, therefore involves the question as to the nature of time, and it is by his conception of time as the cincrete reality that Bergson is able to shed new light upon the Free Will problem.

"Time and Free Will is in no sense a solution of the question of Free Will. The essay shows us rather the relation of the problem to the wider problems of consciousness and the varying conceptions of the universe in general. It outlines the essential assumptions underlying all forms of determinism, and indeed the assumptions that underlie all mechanistic theories of the universe. As we stated above, Bergson does not attempt to define Freedom. Rather, he says, it is indefinable, or better still, the word is meaningless. If we will only consent to view time as a concrete reality, then the whole question of freedom dissolves of itself.

The publication of "Time and Free Will" came at a time when the scientific materialism of Spencer, Huxley, Darwin and other adherents of the infallibility of science was on the wane, The essay, therefore, met with immediate applause, and was received by a jaded public somewhat as an oasis in a desert of materialism. It offered a way of escape from the ever increasing scope of scientific determinism, and hence Bergson was enthusiastically greeted as the champion of freedom. In France, and later in England and America, the Essay was received with acclaim. In America, Bergson found a kindred spirit in James, and to a lesser extent in Dewey. The "Essay" has been remarkable for its selling qualities, which were due partly to the brilliancy of Bergson's style of writing, partly

to the novelty of the ideas expressed. Hence, therefore, when the publication of "Matter and Memory", was issued, it at once received a wide and sympathetic audience.

"Matter and Memory" was the second of Bergson's larger publications, and is a further exposition of the Bergsonian method of philosophy. To this important volume we shall devote the next chapter.

Chapter II. MATTER AND MEMORY.

Introduction - main thesis - relation of matter and mind - criticism of concepts of psychology.

Perception and memory - perception concerned only with action - perception and consciousness - perception physical - memory psychical - motor habit and pure memory - union of perception and memory in recognition - memory images not dependent on the cortex - separate psychical existence of memory images in time - Errors of associationist theories examined - psychical states broken up and analysed under spatial concepts.

Matter and spirit - certain antinomies examined - mobility a diluted form of consciousness - "rhythm of duration" - matter and spirit differ in their "rhythm of duration" - union of matter and spirit in perception and memory - conclusion.

"Matter and Memory" waspublished in 1910, and translated into English in the following year. In this essay we find a further exposition of the Bergsonian method of philosophy. In treatment, it is slightly more technical than "Time and Free Will", and lacks some of the metophorical brilliancy of the former volume. The subject of the essay is ametaphysical one, treated from a psychological standpoint.

In a narrower sense the main thesis of "Matter and Memory", is the problem of the relation of matter and consciousness, as exemplified through the particular problems of perception and memory. In a wider sense the essay is a criticism of the fundamental conceptions of psychology, and still more generally a justification of Dualism as a rational basis of philosophy.

Bergson endeavours to maintain a position somewhat midway between Idealism and Realism. He attempts to affirm the reality of mind without negating the realityof matter and vice versa, to show that mind is not a mere epiphenomemon of matter. His position is avowedly dualistic, and the essay is therefore an attempt to find a satisfactory relation between mind and matter.

The relation between mind and matter has in the past been given the

nature of an assumption; very little work has been actually done in trying to discover the interactions of body and soul as they take place in the brain. Philosophers have been content to assume that the relation could be one of three kinds only. Matter, it has been assumed, may either determine consciousness, or, it may be determined and created by mind, or, finally matter and mind may form two parallel series, between which there exists no relation of cause and effect. By the first theory, mind, in its final analysis, becomes merely an epiphenomenon of matter, by the second, matter is deprived of all existence apart from some mind that knows it, while, by the third, matter and mind become two distinct entities, which it is impossible to relate in any satisfactory manner. Around each of these possibilities, philosophies have been evolved which are antagonistic, and to a great extent, mutually exclusive; and philosophers have been content to either affirm or deny, without any exhaustive attempt being made to discover in what the relation between body and mind as given to consciousness, actually consists.

"Matter and Memory" is primarily an attempt to discover and define in more accurate terms this relation between body and soul. To do this Bergson has recourse to psychological research, and in so doing finds much to criticize in the fundamental concepts of psychology. The problem centres chiefly around the problem of memory. Memory, we shall find is the common ground on which both body and soul meet. In its nature, it is essentially both physical and psychical. By a study of memory, therefore, we shall be attacking the problem of the relation of mind and matter at its very roots.

On its physical side memory merges into perception. Before attacking the problem of memory itself we shall briefly outline Bergson's theory of perception.

The error made by both realism and idealism is to treat perception as though it were concerned only with pure knowledge, using the word "knowledge" in the sense of something of purely speculative interest. This assumption is the fundamental error in both Realism and Idealism, and involves

both theories in inexplicable difficulties. Bergson, on the other hand, emphasizes the utilitarian mature of perception. Perception is not merely a knowing relation between the body and its surroundings, but consists rather in what might be termed a reciprocal relation of activity between the body and the objects around it. Perception is concerned primarily not with knowing at all, but with acting. It is concerned only with those objects in its environment to which the body may react. Not all aspects of our environment are given in perception, indeed, only a very minor part of our environment is so received. Those aspects of nature to which the body has developed specific or general reactions form only a small portion of the total representations of nature. To cite an outstanding example, the wavelengths to which the body reacts and which give rise to those conscious states which we term heat or light, form only a small part of the total series of wavelengths constantly being emanated by various objects in our environment.

Consciousness varies directly with this power of reaction and may be regarded as a function of perception. However, not all perceptions are accompanied by consciousness. Consciousness is limited still further, and illumines only those actions wherein it may play a useful part, or in other words those actions wherein the body may exercise some degree of indetermination or choice. Reactions such as breathing, which occur automatically, seldom give rise to conscious states. In the lower forms of life, where almost all reactions occur automatically, the range of perception and still more of consciousness is very limited.

Bergson lays stress, therefore, on the utilitarian mature of perception. Its function is primarily that of activity and not that of pure knowledge. Perception means therefore eventual action; it must however, be indeterminate action. Perception selects and illumines those aspects of the surrounding world which may become eventual sources of activity to the body. We may go further and say that this limitation of our environment to suit the needs of action is essentially what constitutes perception.

We pointed out above, that perception limits itself to the degree of indetermination to which the body has attained. Conscious perception and cerebral movements are in strict correspondence therefore, because they are both reciprocal functions of a third variant, namely the indetermination of the will. Thus the image formed in consciousness is not a creation of the cortical substance; no more is it something which exists apart from the brain. Rather it consists actually in the relation between the body and its surroundings, and this relation, as we have seen, is one of action and reaction. The image of the object given in perception therefore, exists neither in the brain nor in the object itself. The image is the conscious state which sums up the relation of activity between body and object.

Perception is largely complicated by memory. The psychologists have encountered many problems because they have persisted in treating perception as a distinct entity, while it is essentially a complex thing, of which the larger part is supplied by memory. Memory like perception, cannot be regarded as a function of the cerebral state. However, in order to study and analyse pure perception we must endeavour to thrust out the part played by memory and to deal with perception alone. Such a separation is, in a practical sense impossible, since perception divorced from memory, would resolve itself into an instantaneous succession of mental images with no duration.

By the confusion of the part played by memory in perception, psychologists have been led to regard perception as a series of intensive states, which by some inexplicable process, the mind has learned to externalize and place out as images in space. The realist and idealist differ only in this, that whereas the latter claims that these images are real in themselves, the former claim that they are only representations which may bear a more or less close resemblance to something existing out in space. Both are agreed in this that they regard the images as

conscious states which we have learned to place in some seeming order out in space.

This confusion arises however only when we consider perception as distinct from memory. Practically the two cannot be separated. Perception and memory constantly intermingle. Indeed they illustrate in a concrete way the union of the physical and the psychical in the cortex. Perception and memory are essentially different in their nature, the former corresponding to the physical, the latter to the psychical. Psychologists have been led to infer from the interpenetration of memory and perception that these two differ only in the matter of their intensity. The difference however lies in their essential nature and not merely in their intensity, and it is the union of these two antithetical elements that gives us a concrete illustration of the union of matter and mind. Our analysis therefore must lead to a sonsideration of nature of pure perception and pure memory and of the union of the two.

The problem of memory is of vital importance. It is memory which gives to perception its subjective character. Memory is a power entirely independent of matter. In the phenomenon of memory we are brought into closest touch with what must lie beyond matter. All attempts to derive memory from an analysis of the physical structure of the cortex must ever prove futile. Memory is the stepping stone by which we pass from the spatial nature of matter, to the essentially temporal nature of consciousness. In other words it forms the bridge over which we travel from space into time. To understand its true nature we must remember what we learnt concerning the nature of consciousness in "Time and Free Will". The basis of conscious states rests in concrete duration. Duration likewise is the key by which we may understand the true nature of memory.

There are two distinct types of memory. This first we might term physical memory, the second is pure memory itself.

Physical memory is concerned chiefly with motor mechanisms, learned by the body through repeated and similar reactions to a similar environment.

These motor contrivances are stored up as configurations in the cortex, and represent tendencies to action. Pure memory, on the other hand, consists in independent recollections or images. These independent recollections pass by imperceptible stages into movements which indicate their possible action in space. This transference of the actual image into resulting conscious action may not always take place. The transference may be affected by such physical disorders as lesions of the brain. Physical disorders can however in no way affect the pure images themselves, but only their transference into resulting action. These two forms of memory are theoretically distinct. The one is physical in its nature and is allied to habit; the other is essentially psychical in nature and is memory par excellence.

The images stored up in pure memory are inhibited and controlled by consciousness only insofar as they are useful in interpreting present perceptions. In states, however, where the equilibrium between the brain and external stimulation breaks down, as for example, in sleep the images may come forth unchecked as in the case of dreams. They are, likewise, more or less independent of the will, and cannot be called forth on demand. Hence there arises a need for "learning by heart", which is essentially a recourse to physical memory or the acquiring of suitable motor habits. Unlike motor memory, spontaneous memory remembers every detail at a glance. Because they are independent of the will, however, we cannot always put these memory images to their proper use, so that we are dependent to a great extent on physical memory.

Motor habits and memory images are entirely distinct in their nature, although they coalesce and supplement each other in life. Psychologists however, constantly make the mistake of treating these two forms of memory as though they were essentially the same in their nature. The compound nature of memory has been ignored, and memory has been treated as a simple phenomenon which may be termed either physical or psychical

according to the particular creed of the psychologist,

The theories which would make memory dependent upon certain forms or patterns stored up in the cortex derives its strongest arguments from abnormal psychology which treats of the abnormal functioning of different areas in the cortex. These abnormalities such as lesions of the brain, psychic blindness and other abnormal forms are cited as irrefutable proofs in favor of the theory that memory is actually stored up in the cortex. However, by the division of memory into its two distinct forms, physical memory and pure memory, we are in a position to show the inadequacy of these arguments. These disturbances which often result in loss of certain portions of memory, are due as we have already indicated, to a disturbance in the motor outlet of memory, and do not indicate a loss of the actual memory images themselves. These memory images can only rise to consciousness when they are required by certain elements in perception to play their part in certain motor activities. Destruction of certain portions of the brain would indeed result in a disturbance of these motor reactions and hence the memory image is able to find no outlet by which it may rise to consciousness.

The problems of memory and perception are combined in the problem of recognition. How does that feeling of familiarity which we feel in dealing with certain objects arise ? The current theory which would attempt to explain this feeling of familiarity is the theory of association, which may be summed up under the laws of contiguity and similarity. The theory, however, proves inadequate to really explain recognition. The laws of similarity and contiguity in no way explain association, but are merely a statement of the fact of association. To discover a relation of contiguity or resemblance between two successive ideas, in no way explains the particular manner in which one has given rise to the other.

Bergson's theory, on the other hand, would emphasize the motor side of recognition. The feeling of familiarity which results when we are confronted with well known situations, arises from tendencies to motor action which are excited by perception of the situation. The motor element, however,

is not the only element in recognition. Our whole past life is stored up in memory images, always awaiting the opportunity to slip out and present themselves in consciousness. Now perceptions always their way to appropiate movements. If these stored up images are of any use in promoting the appropiate reaction, they can slip in and reinforce the perception. Memory images which can be used in this way blend with perception and rise to consciousness. However, if they are of no use in the resulting reaction, they are inhibited and consequently cannot find a place in conscious perception.

Memory images combine therefore with perception to give us recognition. In what way does this reinforcement of perception take place ? The current psychological theory argues that the memory is in some way aroused by the passage of the nervous impulse through certain paths in the cortex which have been altered and given a definite configuration by the passage of similar nerve impulses in the past. In some mysterious way the passage of the nerve impulse over this previously defined path arouses in consciousness that mental state which we call recognition of an object. However , if this theory were to really explain memory, it could do so only by making memory a direct function of the cortex. However, here again, we see that the theory is really only a statement and not a solution of the problem involved. The problem at issue is of course the vital one of the relation of body and mind. The psychologists in the past have thought of memory as though it actually resided in the brain cells, and only awaited the passage of a nerve impulse to call it forth. This manner of thinking complicates the problem exceedingly and presents insoluble difficulties. However, if we regard perception as concerned only with activity, we arrive at a better understanding of the problem.

Every stimulus presented to the body, as we have stated above, finds its outlet in appropriate action. The whole energy of the stimulus is involved in finding and promoting this appropriate action. It arouses in the body a certain attitude, and into this attitude memory images insert

themselves spontaneously. The attitude of attention is an attitude of the body rather than of the mind. The consciousness of this bodily attitude is what we have been accustomed to term the mental state of attention. into this attitude of attention memory images insert themselves which reinforce and aid the appropriate teaction. We may compare the attitude of attention to a closed circuit between present perception and past images. Between these two a current passes back and forth in continually widening circles. Memory images go out to meet perception; they strengthen it and insert themselves into it so that we can no longer tell what is perception and what is memory.

We must not think of these memory images as existing in the brain in any way. Rather we must give to them a separate psychical existence even when they sink below the level of consciousness. This conception of memory images is of course in direct opposition to those theories by which memory is localized in certain definite parts of the cortex. Failures of recognition which at first glance may be said to favor these latter theories, are really due to one of two causes: the body may not be able to adopt the appropriate muscular attitude suitable to a recall of memory, or, through a destruction of the motor mechanism of the cortex, memorize may be unable to to realize themselves in action.

Recognition envolves three processes, namely, pure memory, memory images and perception. Pure memory is the latent or nascent memory image, which manifests itself as a memory image only when the body is able to assume the necessary muscular attitude. These memory images fuse with and colour perception, and give rise to that feeling of familiarity which we call recognition. These three processes blend into one another, and we pass through them in a single movement, so that it is impossible to discover where one ends and another begins.

According to the associationist theory the difference between memory and perception is one of degree only. The difference however, is one of of degree and not of kind. Psychologists have in the past, considered

memory as a sort of weakened perception. This misconception is based on the fallacy of confusing those memory images which are a blending of memory and perception with pure memory itself. The difference however is fundamental. The memory image blended or fused into perception becomes a part of the present conscious state, whose tendencies are all toward action. It has become sensori-motor in its character. In other words, pure memory has passed out of the latent form into a form which can merge adequately with perception and express itself in action.

Bergson's theory , as we have seen, involves the anomaly of the real existence of psychical states which have passed out of consciousness,. Pure memory is an example of the existence of such independent psychical states. That this appears to us in the light of an anamoly, however, is due only to our accustomed modes of thought. We have been accustomed in the past to regard consciousness and existence as synonymous terms. Consciousness, we have assumed, is the essential element in a psychical state, so that when a psychical state ceases to be conscious of itself it ceases to exist. However, if we are to believe Bergson, this is not always the case. Consciousness is a function not of existence but only of activity. Consciousness arises along with perception, which as we saw above was the relation of possible reaction existing between a body and its surroundings. We likewise noticed that not all elements of our environment aroused this conscious perception, but only those elements towards which the body was capable of indeterminate action. This view of consciousness, not as the knower but as the doer, is fundamental to an understanding of Bergson's theory. Consciousness illumines only those objects which are a source of possible activity to the body. When a psychical state passes out of consciousness, therefore, it has merely become ineffective in aiding any possible activity of the body. It has not, however, ceased to exist. It possesses a continuous existence, but is only illumined by consciousness when actually in use.

Common sense does not doubt the real existence of spatial objects which lie outside our immediate perception. When an object passes beyond

our perception we take for granted its continued existence in space. However an unperceived psychical state, seems incomprehensible, but this is due only to our manner of thinking. We must regard existence in time as fully as real as existence in space. The fact that the unperceived spatial universe has more reality for us than the unperceived periods of our past existence is due to the greater utility of the former in determining possible reactions of the organism. For the most part our actions are concerned primarily with the spatial universe around us and only to a lesser degree, with our past existence in time. Hence for us extensity in space has more reality than a continued existence in time.

However, in a theoretical sense we must regard this past existence in time as something real and concrete, which can exist independent of conscious perception. It is only by treating consciousness, however, as concerned primarily with activity rather than with pure knowledge, that this separate existence of psychical states in time becomes at all possible, Psychologists have erred by treating consciousness as purely speculative. Through this fallacy the problem of association of ideas has been beset with many difficulties. We intellectualize our ideas to too great an extent. In association the germ of similarity arises not out of a perceived likeness, but out of identical reactions which similar situations evoke. Even by objects superficially different similar reactions may be aroused, and these reactions give rise to the ieea of similarity. It is only later and by an intellectual abstraction that we ascribe common factors to those objects which have called forth similar reactions. We mistake the intellectual process by which we analyse our ideas for the synthetic process by which they have been evolved.

The associationist tends to regard ideas and images as independent entities distinct and spatial. These, Bergson with his ready wealth of metaphor likens to the atoms of Epicurus, which floating through space, reach out and take hold of one-another forming themselves into many diverse patterns.

We cannot however break ideas up in this fashion and think of them as discrete atoms of consciousness.

We intellectualize ideas overmuch. We dissect them and analyse them into discrete parts and then make the mistake of supposing the original whole to be given in this way. Our mental states, however, are never merely am assemblage of distinct and separate ideas. Our whole past psychical existence combines with our entire present mental state to form an indivisible whole, upon which consciousness plays, illumining now one aspect of it, now another, according to the specific activity which the present situation calls forth. Consciousness may be thought of as a searchlight, therefore, which plays over this unified psychical whole lighting up not certain sections or parts of it, but continually showing the unified whole from different aspects of it, while its content continually contracts or expands.

We have seen how the problem of the union of pure perception and pure memory to form concrete perception sums up or compresses to its narrowest limits the problem of the union of matter and spirit. Pure recollection in its psychical aspects combines with pure perception which is physical in its nature, to form a concrete image. Pure perception is an extreme to which we can never attain. Every perception, no matter how fleeting, must have a certain depth of duration through which it is prolonged, before it may be recognized as a concrete image. This prolongation of perception, into duration is supplied by memory. Pure perception may be considered as the lowest form of mind, mind without memory. This union of perception and memory, then, compresses to its narrowest sphere the union of mind and matter. By placing ourselves at this meeting point, we may gain some light on the reciprocal action of spirit and matter.

That this conception of concrete perception as the union of spirit and matter may be of use to us, we must tone down certain of the antimonies between spirit and matter, which have hitherto been regarded as insurmountable. Let us examine first the deep-rooted opposition between extensity and inten-

sity. The common conception of extensity defines it as that which is capable of infinite subdivision. This conception would point to a reality made up of corpuscles, which, on infinite division resolve themselves into points in space. This attribute harmonizes less with the common notion of reality than that conception which would make of reality a homogeneous continuum. The trouble here, again, as in all our intellectual abstractions lies not with reality but with the methods by which we analyse our conceptions of it. Concrete extended reality is the actual reality presented to consciousness, This presentation in consciousness must ever remain our fundamental starting point. It is only when mind ceases to dwell on this concrete reality, and attempts to analyse its conceptions of it, that difficulties arise. Mind is concerned only with the need for action. It delights in clear-cut distinct forms. To this end it supplies to concrete extension an underlying substratum, space, upon which its reactions to matter may be the more readily defined. Matter itself is a concrete reality; the underlying substratum space is only an abstraction of the mind. Mind makes use of this homogeneous space, which is entirely its own creation, for its own activities. The mistake we make, therefore, is to confuse this abstract extension which mind creates for its own use, with that concrete extension which is matter. Concrete extension in this sense is an actual reality to consciousness. Extension in space, however, is not an attribute of reality, but is only an abstraction set up by the mind governed by the necessity for action.

Matter in movement is brought one step nearer to spirit. If we consider movement from the scientist's standpoint it resolves itself into a series of points in space and a noting of simultaneities of corresponding positions. In order to study movement the scientist must abstract from movement its essential mobility, and measure instead its spatial counterpart, i.e. a certain distance in space covered by a moving body in a certain length of time. However, we may ask how can a successive series of points in space give rise to consciousness of real change, a change lived and felt?

The actual fact presented to consciousness is the reality of mobility. If this mobility arouses in consciousness a feeling or state which bears the mark of duration, then the movement itself must partake of a nature somewhat akin to consciousness. That is, it must have consisted not of an infinite number of instantaneous positions, but of a concrete reality which is to some extent capable of prolonging the past into the present. Now this is just the essential attribute of spirit, namely, that ability to exist in concrete duration, that power to assimilate into a concrete present, the immediate present and the fleeting past. We discover in mobility ,therefore, something akin to this essential attribute of spirit, Thus we are led to regard matter in movement as a sort of diluted consciousness, in which the essential attribute of consciousness is seen as in embryo.

In mobility we see the extended counterpart of that duration which characterizes spirit. In order that this movement may be brought into perception, it must undergo a process of contraction or compression. Perception, therefore, is that process whereby the mobility of matter is run through and compressed into a more intense form. Between matter and spirit there exists a difference of intensity. Bergson terms this difference of intensity a difference in the rhythm of duration of matter and spirit. Spirit is a compressed, intensified form of concrete duration, whereas matter, and more particular matter in motion is a slow diluted form of concrete duration. Between these two there may exist an infinite number of degrees. Perception is a contraction of the slow period of duration, which is all matter has as yet attained to, tuned up to a higher degree of tension and made to harmonize with that of spirit. Thus, to cite an outstanding example, light, which in its physical counterpart may be analysed into thousands of separate wave motions, is synthesized by perception and compressed, so that we perceive in consciousness a light or a color. The difference between matter and spirit, therefore, is not an absolute one but is only a difference in the degree of tension, or in other words, in their

rhythm of duration.

We may return now to our problem of perception and memory, and see their union in a truer light. Pure perception, or mind without memory, we may call therefore the lowest form of mind. It is attuned to the rhythm of duration existing in matter. Pure memory, on the other hand, represents that high degree of tension, to which spirit by long and arduous evolution has attained. By the actual union of pure perception and pure memory, the rhythm of external matter is brought to a keener intensity, and made to harmonize with the degree of tension to which spirit has attained.

We have now reached the apex of Bergson's attenpt to correlate matter and spirit. If we analyse his method, we see that he is unable to do this and yet retain the dualistic hypothesis from which he started. The difference between spirit and matter is made one of degree only and not a real difference of kind. Bergson is compelled to resort to a hypothesis of this kind, to explain the union of memory and perception. Even by means of the intuitive method, Bergson is unable to derive any correlation of matter and spirit, and at the same time keep them distinct entities. If we push Bergson's analysis to its logical conclusion, his system resolves itself into a monistic one, with concrete duration asthe fundamental reality. Both matter and spirit are really attributes of this concrete duration, differing only in the rhythm of their duration, Of course, here again, we are confronted with the objection that duration in itself is not the fundamental reality, but only that which changes through duration, which brings us back to matter and spirit again as the prerequisite basis of duration. This objection, however, is not altogether a valid one, inasmuch as in Bergson's theory such objections must necessarily arise in minds which are constituted like our minds because they are evolved, as is shown in "Creative Evolution" by interaction with matter, and their use is the purely utilitarian one of reaction to matter.

We see therefore, that Bergson is compelled to make matter and spirit

differ only in degree, before he can explain their interaction in concrete duration. Through perception, or the compression of the rhythm of matter, spirit may seize in a fleeting moment the diluted consciousness of matter. The degree in which the past can be caught, held on to and assimilated with the instantaneous present to form a concrete present instead of an abstract instantaneous point in time, marks the degree of evolution to which spirit has attained. The embryo of this power is seen in extended matter in the quality of mobility. It is seen in an infinitely higher degree in spirit in the form of consciousness. Between these two, mind has created an apparently impassable gulf. It ascribes to one quantity, extension and necessity, to the other, quality, intensity, and freedom. The separation, however, is not absolute but only appears so by the false abstractions of an intellect designed primarily for the needs of action, and not fitted for purely speculative knowledge.

Chapter III. CREATIVE EVOLUTION.

Introduction - Bergson's philosophy not a system - lack of logical accuracy - brilliancy of style.

"Creative Evolution" a criticism of fundamental concepts of biology - mechanistic and teleological theories of evolution criticized - fundamental differences between physical and biological sciences.

Analysis of intellect - intellect an instrument of life - cannot give knowledge of life itself - divergent tendencies of evolution - vegetable versus animal kingdom - torpor versus mobility - instinct versus intelligence - analysis of instinct - union of instinct and intelligenee in intuition - intuition is sympathy.

Bergson's theory of matter - order and disorder - matter a relaxation of tension - geometrical versus the creative order - second law of Thermodynamics - Matter and spirit regarded as inverse processes - difficulties inherent in Bergson's conception of matter.

Creative Evolution the most important of Bergson's works, was first published in 1911. It was translated into English in the following year by Arthur Michel of Harvard University. The translation gives a very adequate and brilliant rendering of a most difficult volume. In the translation of "Creative Evolution", Professor Michel received the aid of Wildon Carr, the foremost authority on Bergsonian thought, and also the inestimable aid of the author himself.

"Creative Evolution" is the most important contribution that Bergson has made to philosophical thought. It is the most systematic of his works, giving the most complete exposition of his thought. However, it differs from other systems of philosophy in the vital fact that it is, properly speaking, not a system of philosphy . It is essential for those who wish to grasp Bergson's viewpoint to keep this important fact ever in mind. Bergson is trying to present not a complete invulnerable system of philosophy, but rather a method by which philosophy may perhaps be more adequately pursued

than it has been in the past.

We believe that the value of any system of philosophy lies primarily in the manner in which the author has been able to impart into his philosophy something of that fleeting insight or intuition to which he has himself attained. It is not in the laborious accuracy of logical progression of thought, that the value of any system lies, so much as in the genius and insight of its author. In so far therefore, as the philosopher has succeeded in transmitting some portion of his vision through the medium of his writings, so far are these works entitled to any degree of greatness.

Bergson's vision, we believe, has been a profound one. He constantly attempts to impart this vision to us. To create in the mind of his reader some measure of the intuition into the workings of life and consciousness, that he himself has grasped, is the aim that Bergson keeps constantly before him. Hence we find in his works that abundance of metaphorical and picturial imagery, which, though severely critized by his adversaries for lack of logical accuracy, constitutes, we believe, an outstanding part of the value of his philosophy.

However, because of the fact that "Creative Evolution", was never intended to be a system of philosophy, it becomes exceedingly difficult to give in a short space any adequate account of Bergson's thought. A system no matter how complex can always be reduced to its main essential outline, wherein is contained the outstanding features of the system, while the detail by which these essentials are evolved may be omitted. Bergson's philosophy, however, if submitted to a process of this kind looses all its essential vitality, and becomes an empty shell only, once the vision or intuition of the author has been lost, what is left is only the empty husk of what was once a living animate thing.

"Creative Evolution", as its name implies is opposed to those theories which would apply the doctrines of either mechanism or finalism to the problem of evolution. For a mechanistic evolution it substitutes a creative evolution based on the supposition of a free, creative and spontaneous force

of activity in nature.

"Creative Evolution" is a criticism of some of the fundamental conceptions of biology, just as "Matter and Memory", was a criticism of the fundamental principles of psychology. It is, however, more positive in its scope than "Matter and Memory", and bears more directly on the workings of the life process itself. It is likewise a theory of knowledge for, as Bergson claims, a theory of knowledge is inseparable from a theory of life.

We may begin our study of "Creative Evolution" by following Bergson in his analysis of the shortcomings of those theories of evolution now existent. These are two main classes, mechanistic and teleological theories. The first would ascribe to the evolution taking place in nature a first cause from which all subsequent evolution has flowed in somewhat the manner in which a clockspring unwinds itself. By this theory we must suppose that all subsequent variations were already in some way immanent in potentiality in the first cause. Teleological doctrines on the other hand, simply reverse this process, by placing the determining factor at the end of the evolutionary series instead of at the beginning. By these theories, evolution may be regarded as a gathering in of diverse threads to constitute a final end or pattern, which we must consider as being prefigured to different degrees in in different stages of the evolutionary process. Both mechanistic and teleological theories fail to fit the facts of evolution as we find them exemplified in nature.

"Creative Evolution" is a criticism of the fundamental conceptions of the biological sciences. Bergson is related to the modern biological sciences in somewhat the same way as Kant was related to the physical sciences of his day. Kant endeavoured to establish the metaphysical basis of the mathematical and physical sciences. By so doing, however, he limited their sphere to that of the world of phenomena only. To Bergson, on the other hand, the question is, How are the biological sciences possible ? The biological and related sciences both by their youth and by the nature of the material they deal with, lack the authority of the older sciences. We cannot

place the same faith in a law of biology as we place in a law of physics. Why is it that the former rests on an inadequate basis ? The answer given by the biologists themselves lies solely in the inadequacy of the experimental data as yet known, the assumption being that if sufficient data were known the biologist would be able to predict the occurrence of biological phenomena with a precision as unerring as that with which the physicist predicts the movements of bodies in space. Through, further research in physico-chemistry, therefore, the biologist has endeavoured to supplement his scanty store of data, in the hopes that by so doing he will gain for biology all the authority possessed by the older physical sciences. He strives to apply to biology the same fundamental principles that serve as the basis for the physical sciences, and hopes that by further research he may be able to reduce all biological phenomena to the same physical and mathematical principles.

According to Bergson, however, the biologist defeats his own ends in an attempt of this kind. Biological facts cannot be entirely explained on the same basis as physical facts. To try and reduce biology entirely to the principles of physics is to ignore certain fundamental differences between the two sciences. These differences are of two kinds: First, in physics, the whole may be adequately represented as an assemblage of its parts; and given the parts comprising the whole we may with accuracy determine the form of the whole; whereas in biology, the whole is not merely an assemblage of parts, but each part is different for being in a definite relation to the whole; each part is really a partial view of the whole, but the form of the whole cannot be adequately predicted by an analysis of its different parts. Secondly, prediction in the physical sciences is based the reversible nature of physical phenomena, bu the life process on the other hand forms an essentially irreversible series. In physics a system may go through changes which may be said to be identical if before each change all points in the system have been brought back to the initial po-

sition from which each change started. When these positions can be determined with accuracy as, for example, in mathematical astronomy, then subsequent positions can be predicted with unfailing accuracy. In biology, however, we never have a system returning to its starting point, a point where all conditions were identical with those of a previous time. Life processes are essentially irreversible. The past never repeats itself. To say that if we knew all the conditions preceding a biological change, we could predict the form of the object created, is a statement which glosses over and neglects this essential difference between physical series and life processes. Bergson dwelt on this point at length in "Time and Free Will", in an endeavour to show that prediction in the case of the human will was an absurdity, inasmuch as the same identical conditions can never recur again in psychical processes. This was not accidental, but rather a fundamental characteristic of all life processes.

By neglecting these differences between the natures of the biological and physical sciences, biologists have been led to believe that they can reduce all biological organisms to physico-chemical units, and from these build up the whole organism. Such a method, says Bergson, no matter how far pursued will always be inadequate to explain the life process.

The cardinal error of both mechanism and finalism, in their assumption that the whole can be predicted or given at any one moment, is that they neglect the part played by concrete duration. For a system of points as in geometry this method indeed gives an adequate representation of what actually takes place, but for any system where time plays a real part in the development of the system, both mechanism and finalism are inadequate in their explanations. In the evolution of living forms we cannot say that the present was given in the original formless mass from which the multitude of living forms now existent have evolved. To do this is to neglect the vital part played by time in such an evolution. Time, as a concrete reality, presents itself to consciousness as a reality which no system

is able to destroy. We perceive duration as a stream against which we cannot turn back. This is why a universal mathematic must ever fail to give us the key to the evolution of life.

The question arises, however, why is that intellect which has proved such a powerful instrument in the interpretation of spatial forms, at a loss when it seeks to apply its formulae to life itself ? We can only answer this question by an examination of the intellect itself. In doing this we must remember what we learned in regard to the intellect in "Matter and Memory". Here we learned that perception which was closely allied to intelligence was not concerned with speculative knowledge primarily, but solely with the exigencies of action. If we keep in mind the fact that intelligence is primarily the doer rather than the knower, we may readily understand why intelligence is so inclined to bring both the past and the future to bear upon the present. The mind is ever searching the past for the key to present situations, and also the future for the fulfilment of its predictions. As its actions have to do for the most part with mechanical and spatial objects, it tends to emphasize to an undue degree the part played by mechanical causality. In doing so, the intellect glosses over the part played by time, and thinks only of the part played by cause and effect. However although we think causality we yet live in real time, because consciousness itself transcends and overflows the intellect. The intellect forms the bright nucleus of consciousness. However, around this bright central nucleus, consciousness plays in a dimmer fringe or halo, so that we are ever vaguely conscious of the never-ceasing stream of duration, although we actually think only in terms of spatial concepts. It is in this nebula-like fringe of consciousness rather than in the sharply defined powers of intellect, fashioned and definitely organized for the needs of action only, that we must look for further knowledge of the life process itself.

Intellect has been fashioned into a definitely organized instrument by the course of life in its struggle upward against inert matter. It

represents the most powerful instrument that life has invented. It still remains, however, but an instrument, with all the sharply drawn lines of an instrument fashioned for a definite function. Because it has been envolved to act upon inert matter, so must all its concepts ever bear the mark of space. We are prone to exalt the intellect to a place comparable with the life process itself, and so make the error of using the instrument to criticize the master.

To fully understand the exact sphere occupied by intellect, we must examine more carefully the different lines along which the evolutionary process has travelled. Very early in the evolution of life, we notice two divergent paths into which the life stream has divided, namely, the plant kingdom and the animal kingdom. These two classes corresponded to two divergent developments of life. Both derived from the same primordial stock they have separated each to pursue a special function in the evolution of life. That these two corresponding functions are complementary to one-another can be seen by a glance at the mutual relations between plant and animal life. The function of the plant is to store up energy from the solar rays and to fix this energy by the synthesis of certain compounds such as the carbohydrates in the plant. The materials for this wonderful synthesis are found close at hand, in the soil and in the carbon dioxide in the air. Carbon, hydrogen and oxygen by a direct synthesis are not yet fully understood are formed into many different compounds which act as a storehouse of energy. The synthesis of these compounds is an essentially endothermic reaction, and the energy necessary is taken from the solar energy by the chlorophyll in the leaves of the plant. The energy absorbed by the chlorophyll and fixed in synthetic compounds is utilized by the animal through the medium of foods which liberate the energy stored up by the plant and change it back to kinetic energy in the form of motor and conscious activity.

In the lowest forms of life we find genera which appear to be oscillating between the plant and animal kingdom. Both the storage of energy and

the utilization of energy seem to be inherent tendencies in the rudimentary forms of life. However as soon as the organism obtains a multicellular structure one of these tendencies seems to predominate over the other so that the organism follows the route of either plant or animal evolution. It was essential for life that the organism should have certain stores of energy stored up in reservoirs as it were which could be released with the minimum of effort when needed. Both the manufacturing of the explosive and the explosion itself were at first encompassed within a single organism. However, with further evolution the stream of life diverged, so that these two complementary functions grew up side by side in two widely differing forms, the plant and the animal kingdoms.

The animal has progressed in the development of mobility and consciousness. It likewise has shown two divergent tendencies, instinct and intelligence. These tendencies, while blending into one-another, yet remain two distinct tendencies. Different members of the animal kingdom have tended to progress in either one direction or the other. Insect life, for example, has progressed infinitely further in the evolution of ~~intelligence~~ instinct; the higher vertebrates, on the other hand, have kept some degree of balance between the two, while in man intelligence has developed to a striking degree, while instinct has become more or less dormant and usually suppressed by intelligence.

Thus we have in nature these three divergent tendencies, vegetative torpor, instinct and intelligence. These three tendencies differ in degree rather than in kind. The fundamental error which has initiated most of the philosophies of nature is to regard these three tendencies as three successive developments of one and the same tendency, rather than as three divergent lines along which the vital impetus has split up in the course of its evolution.

The difference between instinct and intelligence, although blurred and indistinct because of the interpentration of the two, is yet of the

utmost importance. In her struggle against inert matter, life has diverged into many different channels, and has invented many instruments which may serve her in the struggle. These different channels have by no means proved to be equally fruitful of development. Some have been stopped up while yet in their initial stages, while others have seemed to offer better opportunities for the further progress of the vital impetus. In different branches, life has invented different instruments by which she might gain control over inert matter. Two of the most powerful of these instruments are instinct and intelligence. Intelligence is primarily an instrument invented by life in its struggle against inert matter. As such it is concerned with action rather than with purely speculative knowledge. If we trace the growth of intelligence in the human race, we find that its characteristic quality seems to lie in the ability to invent and use tools by which further power over nature may be obtained. True, intelligence is concerned with knowledge, but only with knowledge that can be put to definite use. Regarded as knowledge, intelligence seems to lie in that power of recognizing relations between material objects which may be used for the exigencies of life.

Instinct, on the other hand, does not know relation, but knows its object directly. Its power seems to lie in the ability to create and use organs which shall serve the organism in its struggle. Because instinct knows its object directly, its actions are performed more perfectly than those of intelligence. On the other hand, because instinct does not recognize relations between objects, its scope is much narrower than that of intelligence. The instruments of instinct are perfect in their functioning, but narrow in their range; the tools of intelligence are often imperfect in their functioning, but have a very wide range of action.

We may make our meaning clearly by an example taken from "Creative Evolution", Our most fruitful examples of instinct come from insect life, where instinct seems to have reached its highest point of development. Let us take one case of many, that of the little beetle, the Sitaris. This insect lays its eggs at the entrance of the underground passage of a kind of a

bee, the Anthophora. As the male bee emerges, the larva clings to it and remains attached to it, till the bee takes its nuptial flight, when the larva takes the opportunity to transfer itself to the female bee. Here it waits until the eggs are laid. When the eggs are laid it leaps on the egg, which serves as a support for it in the honey and also provides it with suitable nourishment. Here, resting on the empty egg-shell, it undergoes its first metamorphosis and becomes a nympth, and then finally a fully fledged insect.

We have here an example of a perfected instinct which our ordinary methods of explanation are inadequate to account for. We may dismiss as superficial those explanations which would make such a marvellous and delicately adjusted process, the result of habits accidentally formed, and transmitted either by heredity or by the Darwinian method of natural selection. Even the neo-Lamarckian theories are inadequate to explain a perfected process such as this, even if we could admit the inheritance of acquired characteristics. The process of development, however, is not the point, with which we are concerned at present. Without endeavouring to explain the development of the instinct, it is sufficient for our purpose to examine the instinct in its final perfected form. We appear to have here a new kind of knowledge, with which intelligence is entirely unable to cope. It is a knowledge of function, or in other words a knowledge of how to act. Indeed, we err in calling it knowledge at all if by knowledge we understand that self-conscious knowledge peculiar to intelligence. We are forced to recognize the fact that life does not limit itself to conscious knowledge, or intelligent.knowledge. When the Sitaris lays its eggs at the mouth fo the passageway, it acts <u>as if</u> it knew that the male Anthophora would soon pass that way. The larva leaps upon the bee <u>as if</u> it knew that it would thereby have the opportunity of transferring itself to the female. The larva leaves the female for the egg <u>as if</u> it knew that there it could obtain nourishment and a means of support in the liquid honey. Everything happens as if conscious knowledge of the whole process was available from the very beginning.

That knowledge, indeed, is there but it is not a conscious knowledge. Knowledge in this case is implicit in the act rather than outside it in consciousness. It is a kind of knowledge that is translated directly into action without giving rise to consciousness. Knowledge of this sort is what we term instinct. It is closer to action, and hence to the vital flow of life itself than intelligence. Indeed it is the vital impulse expressing itself through the perfect functioning of organic forms.

Being closer to the stream of life, instinct may be considered as being directly in touch with the life process, while intelligence, on the other hand knows indirectly through consciousness. This is what Bergson means when he says that instinct is sympathy. The concept is not so vague as most critics would have us believe. The trouble lies in our inability to conceive any sort of knowledge other than that knowledge which acts directly through consciousness. Yet, indeed, only a very small fraction of the life process is carried on by conscious knowledge. We must realize the fact that life is wider, much wider than consciousness, and is the vital reality of which consciousness is only a simple phase. Even in ourselves we find that consciousness plays only a very small part in our actions. We find that when perceptions are able to realize themselves immediately in action, consciousness tends to diminish. Consciousness rises to its highest point, however, when the appropriate reaction is lacking or delayed. Indeed, consciousness seems to arise not through action, but through obstruction to action. Knowledge, therefore, is not synonymous with consciousness. We must recognize the fact that there is an implicit knowledge as well as a conscious knowledge--a knowledge that is expressed directly in action rather than indirectly through consciousness. Being implicit in the action, we may think of this unconscious knowledge as a certain bond of sympathy between the organism and the object.

Intelligence and instinct, could they only be combined, would give us complete knowledge of the life process. Instinct is the unconscious knowledge by which the vital flow of life expresses itself in action. Intelligence, on

the other hand, is conscious knowledge, but it is knowledge that is externalized, and is not directly in touch with the vital impetus itself. It gropes outward among the objects of matter instead of being reflected inwardly on the flow of life. If, by some means, instinct might become self-conscious or intelligence be placed in direct contact with action, then we might obtain full knowledge of the life process .

Now in the higher vertebrates, and in man in particular both these forms of knowledge are developed to a more or less high degree. In man, however, intelligence has tended to supercede and dwarf instinct. The two kinds of knowledge are not entirely separated from one-another; rather they fuse and blend into one-another. Instinct is not entirely unconscious, neither is knowledge entirely concerned with external matter. They merge into one-another on the verge of consciousness. It is in this indistinct nebula-like halo around consciousness, rather than in distinct and clear-cut consciousness that our hope for extending our knowledge of life itself lies. At certain moments instinct seems endowed with a slight halo of consciousness, and we catch a glimpse, not entirely conscious, but vague and fleeting, of the life process which pulsates within. This fleeting intuition is perceived not as conscious knowledge, but rather as a scarcely perceptible feeling of the current of life that surges beneath. At such moments we feel as though we stood on a bridge and through a momentary gap in the vast mist that shrouds all below, we catch for a fleeting moment sight of that swift eternal current that flows ever onward beneath our feet. Now, to these rare moments in which instinct and consciousness combine to give us a fleeting perception on feeling of the life process within us, Bergson gives the name "Intuition". It is through these brief flashes of intuition that philosophy must seek further knowledge of life. Intelligence is a powerful instrument, but intelligence taken alone leads us further and further from the flow of life into external space. Intelligence must be waylaid, and turned back into consciousness of the actual life process from which it springs before

we can gain from it any further knowledge of life.

We have yet to examine Bergson's theory of matter. The evolution of matter and the sphere occupied by it in the evolutionary process, constitutes the most difficult and perhaps the least satisfactory aspect of Bergson's theory of evolution. Throughout the greater part of his philosophy Bergson exhibits dualistic tendencies. In "Matter and Memory", for example, he starts from a dualistic position. Spirit and matter were conceived as distinct realities and the problem resolved itself into that of determining the relations between the two as exhibited in the union of pure memory and pure perception. We saw, however, that in order to explain this union, Bergson was forced to adopt an hypothesis which, in the last analysis, resolved spirit and matter into different aspects of the same thing. In "Creative Evolution" we have the same oscillation between a dualistic or a monistic position. Throughout the great part of "Creative Evolution", Bergson treates matter and the life process as fundamentally opposed to one another. However, when he enters upon an analysis of matter itself, he appears to drop this dualistic attitude, and speaks, - at times at least, - as though matter and life were complementary aspects of one prevading vital impulse. At one moment Bergson speaks of life as insinuating itself into matter, and at the next, he speaks of matter as being the "detension", or relaxation of spirit, Bergson's theory is inclined to be vague and self-contradictory at this point, and it is difficult to lay hold of anything definite in his analysis of matter.

Bergson analyses the idea of matter through a long treatment of the conceptions of order and disorder, as applied to the aspects with which nature presents itself to our consciousness. The idea of disorder is not primarily identical with the absence of order. I take a book down from my shelf and I say, "This is not verse", What I have actually seen is not the absence of verse, but the presence of something else, which in this case, is prose. However, I interpret my perception, in terms of that for which I am looking. Similarly in the idea of disorder, what is perceived is not the

absence of order, but ~~in~~ the presence of something else, which however the mind interprets in terms of that in which it is interested. An actual perception of the absence of order is an impossibility. What then, is actually perceived ? It is something which is other than order and opposed to order. Now by order we mean that order which we find in nature, and which philosophers have long attempted to explain. This geometrical order of nature holds universally for all matter in space. The idea of disorder when applied to nature has been assumed to mean the total absence of order, wherein all objects were resolved together into a nameless chaos. However, the idea of disorder applied to nature actually means something very different from this. When we cease to interpret disorder in terms of the absence of order, and analyse the idea of disorder in itself,we find that what we perceived is the opposite of the geometrical order, an order which is a creative force, an order no longer ruled by geometrical necessity. It is this order of spontaneity or free creation that we really perceive when we speak of the absence of order. There are, therefore, two orders between which the mind plays, perceiving and interpreting one in terms of the other.

The analysis of these two complementary ideas gives us a clue to the relationship existing between matter and spirit. Pure consciousness, in the widest use of the term, if free creative activity; it is essentially the vital order. However, it is only necessary for consciousness to relax its tension, to "detend" as it were, in order that this vital order shall become static or fixed, or in other words pass into the geometrical order of nature. By this process of inversion, the real passes from tension to extension, from freedom to mechanical necessity. Evolution exhibits two orders of progression, the one forward and upward, the other backward and downward. The upward progression, however, by the slightest relaxation, loses its grip and descends by inversion into the downward progression. These two opposite currents correspond to the two orders, the vital order and the mechanical order. The progression of the vital impulse is marked by free creative activity. It falters, however, in its upward course, relaxes, and is swept back in the

downward current of matter.

We see, therefore, from the above analysis, that Bergson seems to arrive at the conclusion that matter is but another aspect of spirit, a spirit that has spent its initial impulse and has sunk back in a congealed form, into the geometrical order. In this view of matter Bergson abandons his dualistic attitude, and makes matter an accident, or quality of spirit. However, here a difficulty arises because he is still assuming the presence of matter as the difficulty which the vital impetus is striving to overcome. If spirit were antecedent to matter, then there would be nothing for spirit to overcome, and likewise nothing which would interrupt the upward flow of spirit and turn it back upon itself into matter. Bergson both posits and creates matter at the same time.

Bergson gives us a slightly different conception of matter, however, in a second analysis, based on the second Law of Thermodynamics. This law, the most universal of physical laws, expresses the fact that all physical changes have a tendency to be degraded into heat, and that heat tends to be distributed among bodies in a uniform manner. If the law of the conservation of energy is the beacon light of science, then, certainly, this second Law of Thermodynamics is the thorn in the side of science. If the universe is a closed system, as the law of conservation of energy would seem to demand, then the time must at length come when the total energy in the universe will be degenerated into an undifferentiated form of heat energy, and the universe itself will be resolved into a formless mass of immutability. Indeed if the universe has existed for an infinite time, then this stage should have been reached long ago.

Two explanations of the above anomaly are possible. Either the universe is not a closed system, or else the law of the degradation of energy is not absolute. The first explanation is unsatisfactory as it merely pushes the problem back into a more remote sphere, and gives no solution to the problem itself. The second possiblity is the one which we must analyse.

If we trace the course of vitality in living organisms we find there

what seems to be an effort to resist this degradation of energy, and turn the flow of energy back in the opposite direction. Living organisms are characterized by two essential qualities, first, the ability to store up energy by the manufacture of synthetic compounds, and, second, the ability to release this energy for the purposes of mobility, in sudden explosions. The first of these qualities characterizes the vegetable kingdom and resides in the chlorphyllian function of the plant, while the second is characteristic of the animal kingdom and resides in an elaborate nervous system. Everything seems to happen, then, as if life were striving against this universal degradation of energy, and were endeavouring to stop or at least retard this downward trend of energy. Life, indeed, seems to be an effort to remount that incline which matter descends. Might it be possible, therefore, that in the creative activity of spirit we have the explanation of why the sum total of energy in the universe has not long before reached the stage of uniformity ? If this were so, we would have two forces at work in the universe, a physical force, subject to geometrical laws, and a creative force, which worked in the opposite direction and strove to raise that potentiality of energy, which matter continually lowered.

According to this conception of matter and life, we see immediately that Bergson returns to the dualistic viewpoint. He now regards matter and spirit as two opposing types of reality. Neither, in this conception, can be regarded as antecedent to the other or dependent on the other. Both are in opposition to one-another, the downward trend of matter being in this case as essential as the upward trend of spirit. The universe is conceived as an endless process of creation and degradation, of making and unmaking, a system based on two opposing principles. Wherein does reality consist in such a system ? we may ask. The process itself in reality, answers Bergson, the process of pure becoming and unbecoming, of making and unmaking. The unsophisticated might seek to know what is becoming, or being made or unmade, but this question is ruled out of order. We only ask it, says Bergson, because our intellects we moulded on spatial forms, and therefore we cannot

conceive this process of pure change as reality in itself.

We are, however, plunged into fresh difficulties when we analyse Bergson's theory of intellect. Throughout the greater part of his philosophy Bergson has asserted intellect to be an instrument created by spirit for the purpose of action ~~and~~ on inert matter. For a final analysis of intellect in the last chapter of "Creative Evolution", intellect is described as a cinematographical device which takes snapshots, as it were, of pure becoming, and reorganizes them in an external artificial medium which we call space. It is through this cinematographical nature of intellect, that thought is involved in so many inextricable difficulties and inherent contradictions when it attempts to analyse its own conceptions. This cinematographical nature of thought explains, for example, why those puzzles of Zeno remain insoluble by purely intellectual conceptions. However, although this theory of intellect may give a satisfactory explanation of these various antinomies of thought, it yet presents grave difficulties when applied to Bergson's own theory of matter. We must now think of matter as carved out of pure becoming by this cinematographical process of the mind. Both matter and space now become pure creations of the mind, and we are in imminent danger of being plunged into a doctrine of pure idealism. However, if we refer back to Bergson's analysis of the formation of intellect, we find that intellect was an instrument created by life in its struggle against matter. Now however, this same matter is considered as being carved out of pure becoming by the cinematographical nature of mind. We have here an inconsistency which amounts to a contradiction of terms.

Bergson maintains however, that while the geometrical nature of matter and space is supplied by the mind, there yet exists an external reality in the form of pure becoming. Is not this doctrine in its essential elements but a restatement of Kant's sense manifold synthesized by the forms of thought ? We might ask further, however, how this pure becoming which we perceive as matter differs from that pure becoming which is spirit ? Is not reality a unity which manifests itself as pure becoming in matter and spirit

alike ? Bergson can only answer through an analysis of mind and matter as given in perception. But it is matter as carved out of pure becoming by the intellect that is given in perception, so that we seem to argue in a circle from which it is impossible to extricate ourselves.

We were told, likewise, that intellect in the making became geometrical in its nature and spatial in its conceptions, by reason of its constant interaction with external matter. We are now asked, however, to picture this external an materialized world as a creation carved out of pure becoming by the cinematographical nature of intellect itself. Thus intellect carves the material order out of pure becoming by reason of its own nature, and at the same time receives this nature through interaction with external matter. Thus, once again, Bergson posits matter and creates matter at one and the same time.

As we have seen, a careful study of Bergson's position leaves us in some doubg as to whether we shall class his philosophy as dualism or as a monism. Certainly we shall not class him as an idealist in the objective sense, and certainly we shall not place him with the realists, although, perhaps, his position on the whole is slightly nearer to the latter than to the former. Indeed, Bergson's philosophy contains elements which are akin to widely differing schools of philosophy, and again, other elements which segregate Bergson as distinctly individualistic.

If we might be permitted to go slightly further along the Bergsonian line of thought, we would say that Bergson's philosophy should end ultimately in a monistic rather than a dualistic position. This would harmonize perhaps, better than the dualistic position which Bergson endeavours to maintain, with the main trend of thought expressed in "Creative Evolution"; William James considered that there was a close kindship between Bergson's position and his own pluralistic position. However, it is extremely doubtful whether an attempt to interpret "Creative Evolution" on a pluralistic basis would not involve more inconsistencies than there are already in the system. On the other hand a monistic interpretation of Bergson's philosophy

resolves many of its difficulties into forms which harmonize more nearly with the system as a whole.

Concrete duration and the vital impetus are the foundation stones of "Creative Evolution." If we blend these two into one we shall obtain a unity which embraces all other elements in the system. If we analyse Bergson's system a little further we see that the vital impetus which is the driving force behind the evolution of life, is no more than concrete duration regarded from a slightly different stand point. The vital impetus acts through the cumulative effect of concrete duration is the expression of the working out of the vital impetus, Concrete duration and vital impetus are but two aspects of a simgle unity. In the last analysis, therefore, time considered as a cumulative creative force is the basis of Bergson's system of creative evolution. Life, Consciousness, Matter are but the infinite forms into which this creative duration continually flows. It would be interesting to conjecture what influence the Minkowski and Einstein theories of the relativity of force, space and time would have exerted of Bergson's treatment of time. Unfortunately, however, the bulk of Bergson's work was written before these theories reached their fruition.

Chapter IV.

CRITICISM AND CONCLUSION.

Criticism of becoming as ultimate reality - lack of correspondence between reality and the external world - criticism of Bergson's conception of matter- matter created and posited at the same time.

Bergson's theory of knowledge analysed - instinct and intelligence - differ in degree rather than kind - impossibility of ultimate knowledge of reality - logical error involved in discrediting the intellect.

Bergson's philosophy not a system - Bergson's contribution to philosophy - conclusion.

Bergson's philosophy, in many ways, makes a break with the older type of philosophical systems. For this reason, partly, it has been subjected to a great deal of criticism. This is unfortunate, in some respects, since the true value of Bergson's philosophy can only be appreciated if the reader makes an earnest sympathetic effort to understand the spirit; rather than the logic of Bergson's philosophy.

In the main, criticisms of Bergson's philosophy are levelled against either his creative system of reality, or against his theory of knowledge, and his conceptions of intellect, instinct, and intiution. For the most part his critical work in psychology, as found chiefly in "Time and Free Will," and "Matter and Memory", is recognized as psychologically sound, and is often estimated to be one of the most valuable contributions to psychology in recent years. Likewise, the great value of Bergson's biological work, and his criticisms of the fundamental conceptios oof biology is universally recognized.

We shall now examine, as briefly as possible, a few of the current criticisms brought against Bergson's philosophy.

The commonest criticism of Bergson's philosophy is directed against Bergson's conception of reality. According to Bergson, we must think of

reality as a continuous flow of pure becoming, in which there is nothing that changes, but only pure change itself. If we accept this view of reality, we are inevitably drawn to the conclusion that reality is purely featureless. In the pure flow of becoming there can be no discrimination or distinction; there can be nothing by which one part of reality might be distinguished from another. Nor the world of reality, as we see it, is, according to Bergson, carved out of this featureless becoming by the dissecting nature of the intellect. The world of perception, however, cannot correspond in any way to reality itself, since there can be no points of reference in a reality which is pure becoming. The external world, then, must be quite arbitrary, since it can correspond to no distinctions in reality which is pure becoming. (The external world, then, must be quite arbitrary, since it can correspond to no distinctions in reality itself.) This lack of correspondence between the external world and pure reality is one of the fundamental weaknesses of Bergson's philosophy. The problem of the objectivity of the external world at once arises, once this objection is voiced. We can explain this objectivity of the external world in two ways: Either reality must contain within itself the distinctions which we perceive in the external world, or if we deny this, we must make of mind an objective reality, and give to the laws of thought, that objectivity which we see in the external world. The first course leads to Realism, the second to Objective Idealism Bergson strives to maintain a position midway between these two, but only succeeds in inheriting the difficulties of both.

We pointed out in the last chapter, certain objections to Bergson's conception of matter. The difficulties here, likewise, arise out of considering reality as pure featureless change. Bergson speaks of matter as an invirse flow, the turning back of the vital impetus upon itself. However, matter is likewise, that which interrupts the vital impetus on its upward flight and turns it back upon itself. Now, if reality is pure becoming and there is nothing but pure becoming, then what is it that interrupts matter in its upward flight, and turns it back in the opposite direction? If we

regard matter as the stoppage in the flow, we must either admit the separate reality of matter, or else admit the reality is not quite featureless but contains within itself the seeds of division. Bergson commits, therefore the logical error of making matter that which results from the interruption of the flow of pure becoming, and also that which interrupts. Thus, as we pointed out above, Bergson both creates and posits matter at one and the same time.

Bergson's theory of knowledge is likewise open to serious criticism. Bergson holds, as we have already seen, that intellect is but an instrument created by life, and can consequently give us no knowledge of the life process itself. Instinct, however, on the other hand, is directly in touch with the flow of reality, but unfortunately lacks consciousness of itself. By the union of these two on the verge of consciousness, we have what Bergson calls intuition. Intuition is instinct which has attained self-consciousness, or intelligence which has been turned inward upon its source.

Bergson's theory of instinct is open to the serious criticism of failing to conform to the actual facts of nature. Biologists are practically unanimous in declaring that the difference between instinct and intelligence as likewise between animals and men, is one of degree only, and not of kind as Bergson would make it. The current biological theory tends to regard instinct as a form of subconscious mind, which is found in the rudimentory form ~~of~~ in animals and insects, but which reaches its richest and most developed form in the subconscious mind of man.

However, even if we admit a difference of kind between instinct and intelligence, Bergson is still confronted with many difficulties. Bergson attempts to show that intelligence and instinct are divergent tendencies, whose paths grow continually further apart. If this be so, we should expect that in man intelligence will be ultimately developed to the entire exclusion of instinct, while those organisms in which instinct predominates

will gradually lose all power of intellect. Self-consciousness, also would cease to exist in these latter organism, since a perfectly developed instinct works without consciousness of itself. However, if we examine intelligence and instinct as actually manifested in nature, we find that they develop along exactly opposite lines. As each species attains to a higher development, we find that what was originally blind instinct growing more and more rational and selfconscious. Instinct becomes capable of a wider range of action and finally merges into what we are accustomed to term intelligence.

The conception of instinct and intelligence as divergent tendencies would likewise deny the possibility of ultimate knowledge. If instinct in man is subordinated to intellect, and diminishes as intellect develops, we may expect, therefore, that man's knowledge will become more and more geometrical and spatial in its character. Dealing solely with matter or external reality, it will lose all contact with ultimate reality, which is according to Bergson, pure becoming. The prospects, therefore, for the ascertaining of the truth of reality become more and more remote. The further intelligence is developed, the further are we removed from the truth of reality.

Then, finally, the criticism is urged against Bergson that by invalidating the knowledge given by the intellect, he invalidates the basis of his whole philosophy. Critics are unanimous in the conclusion that Bergson's philosophy is an intellectual achievement of the highest order. However, if this system of philosophy is the work of the intellect, then any arguments against the truth of the knowledge given by the intellect must inevitably reach against the truth of the system. Insofar as Bergson discredits the intellect, he discredits the whole fabric of his philosophy.

We see, therefore, that Bergson's philosophy is beset with logical difficulties of a most serious kind. As we stated above, however, Bergson is in no way concerned to give us a watertight system of philosophy. Throughout his philosophy Bergson has done admirably what he set out to do

namely to impart to the reader something of that intuition into the real nature of life and reality, which Bergson believes can be in some degree actually known. We must judge the work of Bergson not by comparison with other systems of philosophy, but rather by the insight and intuition of the author and by his power to impart this to us.

Regarded in the above light, Bergson's contribution to philosophy has been a very great one. In the interest he has created among the general reading public in philosophy and its problems, he undoubtedly stands foremost among modern philosophers. In his criticism of mechanism and scientific materialism, he exerted a great influence on that reactionary movement against the dogmas of science, which marked the close of the nineteenth century and the opening of the twentieth, and gave rise to such widely divergent movements as Temporalism, Pragmatism, and the Neo-Idealism of Croce and Gentiles. Although at the present day Bergson's influence seems to be somewhat on the wane, This is probably but the inevitable reaction to inordinate applause showered on him in the last decade. That the philosophy of Bergson will have a very great influence on the philosophy of the future, there can be but little doubt. This influence, however, will probably be of a more sober and rational kind than was indicated by the phenomenal popularity which greated the first publication of his works. The Bergsonian conception of reality must ever exist side by side as the counterpart and the complement of the Parmenidean conception of reality. From the union of these two fundamentally opposite conceptions, there shall yet grow a radical yet rational system of philospphy, which shall have its roots deep in the heart of change, but which shall yet retain its grasp on reality.

BIBLIOGRAPHY.

List of the more important of Bergson's publications:-

1. More important of Bergson's Works:-

Time and Free Will,
tr. by A. L. Pogson,
London, George Allen & Co. Ltd., 1913.

Matter and Memory,
tr. by N. M. Paul and W. S. Palmer,
London, George Allen & Co. Ltd., 1912.

Laughter, an essay on the meaning of the comic,
tr. by C. Brereton and F. Rothwell,
London, Macmillan & Co. Ltd., 1913.

An Introduction to Metaphysics,
tr. by T. E. Hulme,
London, G. P. Putman's Sons, 1912.

Creative Evolution,
tr. by Arthur Michel,
London, Macmillan & Co. Ltd. 1914.

Mind Energy, lectures and essays,
tr. by H. Wildon Carr.
New York, H. Holt & Co. Ltd., 1920.

2. List of books dealing wholly or in part with Bergson's philosophy:-

An Examination of Professor Bergson's Philosophy, by David Balsillie,M.A.
London, Williams and Norgate, 1912.

The Scientific Approach to Philospphy,
by H. Wildon Carr.
London, Macmillan & Co. Ltd. 1924.

The Philosophy of Bergson,
by A. D. Lindsay,
London, J. M. Dent & Sons, Ltd., 1911.

Some Modern French Writers, a study in Bergsonism,
by G. Turquet-Milnes,
New York, R. M. McBride & Co. 1921.

Henri Bergson, a study in radical evolution,
by Emil C. Wilm,
New York, Sturgis and Walton, Co. 1914.

The Present Conflict of Ideals,
by Ralph B. Perry.
New York, Longmans, Green & Co. 1922.

From Pascal to Proust,
by G. Turquet-Milnes,
London, Jonathan Cape, Ltd., 1926.

Adventures in Philosophy,
by J. C. Wordsworth,
London, G. Allen and Unwin, Ltd., 1925.

Introduction to Modern Philosophy,
by C. M. Joad,
Oxford, Clarendon Press. 1925.

The Reign of Relativity,
by Viscount Haldane,
London, John Murray, Ltd. 1921.

Problems of the Self,
by John Laird,
London, Macmillan and Co. Ltd., 1917.

"Bradley or Bergson", in "Collected Essays and Reviews",
by William James,
London, Longmans, Green & Co., 1920.

Present Philosophical Tendencies,
by Ralph B. Perry,
London, Longmans, Green & Co., 1916.