II.—MIND AND BODY IN RECENT PSYCHOLOGY.¹

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THE aim of this paper may be stated in a sentence: it is a defence and a modified restatement of the old doctrine of Interaction as, at present, the most satisfactory theory of the connexion between body and mind. Not, of course, that Interaction is without difficulties, which I have no desire to make light of, or that it is necessarily tenable as the last word of Metaphysics. I shall claim rather that the difficulties of the theory are in principle those which must arise in any case of apparently transeunt action of one thing on another, whereas the now more popular doctrine of Parallelism complicates the problem by the introduction of fresh and formidable difficulties due to gratuitous metaphysical hypotheses. Much of my argument will proceed on lines familiar enough to students of Mr. Bradley and Prof. Ward, but I shall attempt to give what is, so far as I know, an independent formulation of the Interaction view, and shall supplement my positive contention by a special examination of the positions taken up by three recent psychologists of eminence, Stout, Ebbinghaus and Münsterberg, all supporters of some form of the parallelistic hypothesis. In the present state of psychological opinion a defence of Interaction may appear reactionary; yet there must be a future for a doctrine which counts among its more recent adherents such metaphysicians and psychologists as Lotze, Bradley, Ward and James. I may so far anticipate here the results which I hope to establish as to call attention to two special features of the doctrine presently to be defended which I believe to be essential to a sound theory and from neglect of which most

¹ Read (in substance) before the Oxford Philosophical Society, 4th May, 1902. For a briefer statement of the views here advocated see my *Elements of Metaphysics*, bk. iv., c. ii. The date of composition will explain why there is neither in this paper nor in my book any reference to Dr. Strong's valuable work, *Why the Soul has a Body*.

forms of the Interaction hypothesis have fallen into disfavour. (1) Our doctrine will attempt to harmonise the acceptance of Interaction as the best working hypothesis in Psychology with all that is true in the epistemological arguments for regarding body and mind as the double presentation of a single reality. (2) And our doctrine will be explicitly put forward as working hypothesis and not as ultimate metaphysical truth. At the same time we shall contend that any theory of the connexion between mind and body must be working hypothesis, and that, in particular, the attempts which have frequently been made to treat the rival Parallelistic theory as if it were an integral part of Idealist Metaphysics are no better than an *ignoratio elenchi*.

I.

In dealing with our problem we cannot be too careful to begin with a precise understanding of the question which any theory of mind and body has to answer. It is, of course, clear that the question how mind and body are related presupposes the previous recognition of some distinction between the two; only from the standpoint of some kind of relative dualism has our problem any meaning. And it is fundamental to observe that this distinction between mind and body, whether as two things or as two aspects of one thing, cannot arise so long as we are engaged exclusively in the interpretation of our own individual experience. I, as I am for myself in direct self-experience, am neither body nor mind nor a composite of the two. I am just I, a complex of significant purposive feeling, a being that feels and thinks and strives, in short, a *soul*, if I may be allowed to use a much-abused word without making any ulterior metaphysical implications. It is only when I come to describe my social environment, my fellow-men and my animal congeners, that I feel any need to split up the individual centre of experiences into two parts or two aspects, and when I ascribe the resulting duality of parts or aspects to my own self I am reinterpreting my direct experience in terms derived from my theories about my fellows. The nature of the motives leading to this dualistic construction, first of the life of my fellows and then of my own, and the steps by which it is effected, have been explained by more than one recent philosopher of note, and by none more brilliantly than by Avenarius in his masterly and delightful little work, *Der Menschliche Weltbegriff*. I borrow here from Avenarius and his successors in the same field of investigation just so much of their results as seems absolutely

necessary for our present purpose, and would refer the reader to my sources for fuller information and discussion.

All scientific interpretation of the facts of the world around us, as we cannot too frequently remind ourselves, is derived in the last resort from our practical need for industrial co-operation. Because we cannot normally win to our own ends in dealing with our environment without the concerted assistance of our fellows, we are permanently dependent for all practical success upon inter-communication. It is only by such inter-communication that the formation of concerted plans for dealing with the various situations to which we have from time to time to adjust ourselves is rendered possible. Out of this need for inter-communication arises the purpose of *describing* the facts of our situation in terms equally intelligible to every member of the co-operating group, and thus eventually the whole complex of the empirical sciences. Now there is ultimately only one way in which the purpose of intelligible description can be attained ; the contents of the individual's experience can be communicated to other individuals just in so far as they can be reduced to complexes of presentations which have their equivalents in the experience of all other individuals of the same structure. In the real experience of any individual such complexes of presentations are, of course, never presented alone ; they are always given in immediate unity with a mass of direct unanalysed feeling of satisfied or dissatisfied tendency which is in its very nature unique and incapable of communication from one individual to others. Thus all intercommunication and description presuppose the artificial abstraction and separation of one aspect of experience from another with which, in real fact, it stands in indissoluble unity. The systematic execution of our purpose to describe our common environment in terms equally intelligible to every member of the social group thus gives rise to the conception of the external world or physical order as a connected complex of sense-presentations. Whatever elements or aspects of a concrete individual experience refuse to admit of analysis into such presentational complexes are, from the nature of the case, no part of the common physical order or external world of the social group.

Now, on one side, our fellow-men, and other animal congeners, are obviously members of the physical order. They are, for our senses, like other things complexes of presented qualities, each of which has its equivalent in the experience of other members of the social group, and is thus capable of description. And we have, in our need for co-

operation, precisely the same motives for making the sensible behaviour of our fellows the subject of communication and description as we have in the case of other constituents of the physical order. On the other hand, our fellow-men are for our direct experience something more than describable complexes of presentations or constituents of the physical order. For I can only understand and achieve my own purposes in so far as I take into account their relation to the partly co-operating, partly conflicting purpose of the other members of my social group. Co-operation itself implies not only the presence of a common environment, capable of being perceived in equivalent ways and therefore of being described, but also the presence of other members of the social group with interests and purposes of their own akin to mine.¹ Hence, over and above their existence as describable complexes of presentations or members of the physical order, my fellow-men must have another kind of existence of the same sort as that of which I am directly aware in my own experience of myself as a centre of immediate feelings, cravings, and purposes. On this side of their existence they belong not to the physical order, but to a social, or in a wide sense of the term an ethical, order incapable of resolution into presentation-complexes and therefore essentially non-physical.

And the result won originally from analysis of the existence of my fellow-men is necessarily read back into my own interpretation of my own existence. As I directly experience myself, there is, as we have already seen, no duality of factors or elements in my experience. But with the need of mutual intercourse the case is at once altered. For the same purposes which lead me to describe my fellows, I need to describe myself in terms equally intelligible to all the members of my social group. Only so can I impart to another such knowledge of my own past or future behaviour as is requisite for effective co-operation. And the means of such description are ready to my hand. For each organ of my own body is, for the other sense-organs, just what the bodies of my fellows are, a complex of presented and describable sense-qualities. Hence I too come to be thought of as having a double existence. For my fellows' senses and for my own, I am a member of the physical order consisting ultimately of a complex of sense-presentations; for my own direct experience I am a striving, feeling being of an essentially non-physical type. With the development of human co-operation and

¹ I may now refer to the admirably lucid treatment of co-operation in Prof. Stout's *Groundwork of Psychology*, pp. 170-187.

the systematic description it necessitates, the original unity of direct self-experience is replaced by the dualism of myself as an object of description, my body, and myself as sentient and purposive, my mind.¹ Now arises the question how the two sundered aspects of the original unity are for science itself to be once more reunited, and this question constitutes our psychophysical problem of the connexion between body and mind.

At the outset it seems necessary to protest against one plausible contention that, if admitted, would completely exclude Interaction as a solution of the problem. On your own showing, it may be said, what, from one point of view and for descriptive purposes, is looked on as part of the physical order and called my body, is in actual fact the same reality which, as directly experienced, is called my mind. We are dealing not with two things but with two ways of regarding one thing, and there can therefore be no question of interaction. To reason thus would be to confuse the standpoint of real life with that of abstract scientific analysis. For scientific analysis the case inevitably stands thus. We have been driven, in the execution of the purposes which lie at

¹ It will be seen that I purposely avoid going into the difficult question of the logical character of Psychology as, in some sense, a descriptive science at the present stage of our argument. I would, however, offer the following suggestions towards the solution of the logical problem for what they may be worth: (1) The descriptions of analytic Psychology certainly stand on a different logical footing from those of the physical sciences. For they are constructed in terms of precisely that aspect of experience which is not directly communicable from one subject to others, and are therefore in principle unavailable for the practical purposes of co-operation and concerted reaction. So far as we actually use psychological hypotheses, if we ever do use them, for this practical purpose, they can be at best mere temporary stop-gaps for the eking out of an imperfect Anatomy and Physiology. The only ultimately consistent method of describing the conduct of our fellows in purely mechanical terms would be to reduce it to sequences of an exclusively physical kind. So far I think the conclusions reached by Prof. Münsterberg in his *Psychologie* are unavoidable. (2) All description, however, is not necessarily of the strictly practical or physical-scientific type. Description may be undertaken in the interests of æsthetic or historical interpretation, and in that case must involve the use of teleological categories, and must be capable of extension so as *indirectly* to include the non-physical in its scope (*Cf. Elements of Metaphysics*, bk. iv., c. i., pp. 301-302). It is, I would suggest, in such æsthetically and historically motivated description that we must look for the proper and peculiar subject-matter of Psychology. (3) The extent to which Psychology is of practical use for pedagogic, juristic and psychiatric purposes is commonly exaggerated in the current literature of the subject from a natural confusion between Psychology and direct personal insight into individual character. Here again I find myself in complete accord with Prof. Münsterberg.

the root of scientific description, to exclude certain aspects of real life from our conception of the physical order, and to relegate them to a second non-physical or psychical realm. The problem now arises how to bring these two realms of the physical and the psychical once more into some sort of connexion. To attempt the solution of this problem by simply reverting to the standpoint of immediate experience, as it was before the creation of the concept of a physical order, would be to undo at a stroke the whole previous work of our physical scientific constructions. From the standpoint of immediate experience there can be no problem of the connexion between the physical and the psychical, precisely because both the physical and the psychical are *entia rationis*, mere artificial constructions of our own analytic intellect. From the standpoint of the scientific reconstruction of experience, on the other hand, the problem, as Münsterberg well puts it, is not to find *the* connexion between the physical and the psychical, but to invent *a* connexion in harmony with the general aims of scientific description. Whether this object is best secured by a hypothesis of parallelism or by one of interaction can only be decided by the detailed examination of the alternative; there is no *a priori* philosophical ground for preferring one solution to the other.

I may perhaps make my point clearer by restating it in the following way. For my direct experience of my own "inner life" my body is certainly the same thing as my mind, or rather is a subordinate aspect of the teleological unity which, as a whole, I call my mind. For it is simply a name for the complex of those purposive changes of state which take place with a regularity that is, within the limits of our powers of observation, uniform, and can therefore be apprehended and described in general terms without insight into the incommunicably individual character of the complete purposive processes to which they are always in actual fact subservient. Thus we should be sufficiently near the truth if we were to say that my body, as I directly experience it, is the relatively most fixed and regular portion of my system of mental *habits*. But for psychological and psychophysical science the case is entirely different. Psychology and Psychophysics alike presuppose the previous creation, for descriptive purposes, of the conception of the physical order as a reciprocally interconnected system of mechanically determined changes. When once we have come, under the influences previously described, to conceive thus of the bodies of our fellows and ourselves as physical objects capable of direct description in general terms, it inevitably follows that all that is unique and individual in

our experienced life, *i.e.*, all initiation of *fresh* purposive reactions, has to be relegated to a psychical order falling outside the physical. And as practical experience shows us that all real life involves the element of fresh purposive reaction at every instant, we are inevitably compelled to translate the purposiveness of concrete experience, for our scientific objects, into a *connexion* between two distinct things, a physical and a non-physical or psychical system. There is no logical contradiction in thus treating for the special purposes of our science as *two* things what from another point of view must be regarded as *one* thing; for, as we have all long ago learned, the same reality is rightly regarded as one or as many according to the nature of the special interests with which we approach it. Soul and body must for Psychology be two just because it is our interest as psychologists to formulate an account of our mental life which will not involve the undoing of the previous constructions of physical science.

II.

Before proceeding to the detailed examination of the views we have singled out for special attention, we must now briefly indicate the reasons which appear to turn the scale in favour of interaction as against any form of the two-aspect or parallel series doctrine, and examine, and, if we can, refute, certain general prejudices which have made the latter view the more popular at the present time.

First, then, the arguments in favour of interaction. These have always seemed to me to be in the main thrée. There is first the logical contention, which has been specially developed by Bradley, and never, so far as I know, seriously met. The facts on which our theory has to be based are all cases in which one total psychophysical state is sequent on another total state of the same complex kind. We have never to deal with sequence of the barely physical on the barely psychical or *vice versa*. Nor, again, can we verify as a fact in the history of our organism any real sequence of the barely psychical on the barely psychical, or the barely physical on the barely physical. Wherever we are dealing with what we have adequate ground for treating as fact, we find both antecedent and consequent complex.¹ Hence the only inference warranted by Logic seems to be to the dependence of complex state on complex state, or, in other words, to the

¹ In other words, the aspects of uniform habitual response to stimulus and of fresh teleological adaptation are always found together in any concrete reaction, never separate.

presence of psychical states among the antecedents of physical states and *vice versa*. We have no negative instances at all, of the kind which would be wanted to show that either series would be what it is apart from the other. And without such evidence, any such separation into two parallel series as is required by every form of the double-aspect theory seems to rest on a fallacy. Even in the case of reflex human action, which has often been brought up as one of the chief defences of parallelism, we are not entitled to say that because the background of psychical existence seems to be inoperative in determining the precise character of the physical sequence, it is not requisite for its existence. This insistence on the purely relative character of all observed independence indeed appears to me one of Bradley's chief services to Logic.

If you try to turn the edge of this argument by replying that it tells against the theory of two independent parallel series, but not against the doctrine of the double aspects of a single thing, you have to meet an equally damaging contention of which Dr. Ward has made effective use. If mind and body are to be two aspects of one thing, then we must have rigid one-to-one correspondence of each element of the psychical manifold with one definite element of the physical manifold. Nothing short of such absolute, complete, unambiguous point-to-point correspondence will give you the conclusion you want. A merely limited correspondence, extending only to certain characteristics of the corresponding elements, will no more prove your point than the correspondence between the relative position of dots on a map and of towns in a county will prove that the collection of dots is another aspect of the towns. Now such complete correspondence, as Ward argues, is precisely what we have not got. Before you could have it, you would have to analyse the mental series into elements answering exactly to the elements of the bodily series. Mere rough "localisation" would have to give place to a definite unambiguous correspondence between the relative position of each cerebral element and some definite relation of the corresponding mental element to all the rest. There would have to be an exact mental counterpart of the composition of an atom in the cortex out of more ultimate prime atoms, or even to the formation of the prime atom itself as a form of motion in a continuous ether. Again you would have to show the mental equivalents of the extension in three dimensions of each of your cerebral atoms and of its characteristic atomic weight, and so on. You would, in fact, be thrown back on a psychological atomism of the most uncompromis-

ing kind, and would have to meet all the objections which seem to have proved fatal to the atomic interpretation of mental facts.

A still more formidable application of the same line of argument results from starting with the facts of the psychical series, and asking how their physical aspect is to be conceived. For the elements of the mental manifold do not merely occur—they are understood, have a meaning. What then can be the physical aspect of the apprehension of meaning or significance? Suppose, for instance, that the same meaning is apprehended by two minds as constituting the significance of radically different series of mental images, as when St. Peter's congregation, on the day of Pentecost, heard "each in our own tongue in which we were born" the apostle's discourse, or when two minds apprehend the same truth by means of different sets of mathematical symbols. Or, again, suppose that the same series of symbols is differently apprehended, or, apprehended in one case, merely entertained as a succession of presented contents in the other. Where are we to look for the physical counterpart of this mental character of being apprehended as having significance? You cannot identify it with a peculiarity of some one elementary nervous process, as it, by hypothesis, must belong to the series as a whole, and not to any single part. Nor can you find it in the general condition of the cortex as a whole, at the moment of apprehension, as from the physical point of view such a general condition must itself be a mere aggregate of the conditions of single nervous elements, to which the mental correspondents must be peculiarities of the ultimate factors into which the mental state can be analysed. Reflexion on this problem of meaning and its apprehension has always seemed to me to lead inevitably to the conviction that there are, as common sense holds, forms or, at least, aspects of mental function to which there is in strictness no physical counterpart. I do not mean of course that they actually occur in isolation from cerebral process, or that they are even known to be possible in such isolation, but that there is no definite one-to-one correspondence between them and any one definite physical process of which they could be called aspects, and that they are therefore truly independent, in the same relative sense in which we can call any event in the world independent of another event.

This result seems to me in full accord with all the known facts of bodily and mental concomitance, as distinguished from extraneous metaphysical theories about the ultimate

nature of the real. For what the known facts of localisation, and so forth, show us is after all merely a certain partial concomitance between nervous and mental process, and further a certain broad correspondence between mental and nervous structure, such as is for instance indicated by the physical analogues to the laws of association or of the formation of mental habits. And such correspondence would be quite in accord with the view that body and mind are two interrelated things of the same type, though of very different degree of systematic organisation, a view which means a return to the old belief in interaction.

The reference to meaning as characteristic of the mental series suggests a further argument against any double-aspect doctrine. On the two-aspect theory, one of the series will have to be teleological, and the other merely mechanical. For the whole point of the doctrine, in the form which appeals to the modern psychologist, is that it exhibits the purposive as universally co-existing with the merely mechanical but not affecting its course. Hence we may leave out of consideration such a version of the doctrine as you get in some familiar passages of Spinoza, with whom the two series are alike mechanical in type, and teleological determination is theoretically excluded from both. But is this parallelism between an essentially mechanical and an essentially teleological and purposive series conceivable? Whether you make the mental series teleological and the physical mechanical, as you probably will, or with Münsterberg so define the consciousness studied by psychology as to reduce it to a mechanical sequence, and then restore the character of intelligence to human action by endowing the physical mechanism itself with the power of purposive selection, you are in either case asserting in one breath the exact correspondence, and the utter disparateness in principle of your two series. And this scarcely seems a rational attitude.¹ If again you decide, as it seems wisest to do, for regarding both series as teleological, the parallelism at once goes by the board. For the very fact that the one series can be more or less satisfactorily constructed in terms of a refined and complicated mechanism, while the other cannot, but needs for its interpretation the recognition of an explicit purposive and selective unity, shows that as teleological

¹ It is only fair to say that Prof. Münsterberg informs me in a private communication that his theory is meant to reduce both series for Psychology to the purely mechanical type. This explanation seems to me to rob his *Aktionstheorie* of all its suggestiveness and to leave the fundamental characteristic of psychical life a hopeless mystery.

systems they cannot stand on the same level of organisation ; one or the other must represent a higher level of purposiveness, and as manifestations of the same type of structure but at different levels, the two series cannot have a genuine point-to-point correspondence. There must be, so to say, some term or terms of the higher series which have not their definite and unambiguous representatives in the lower. At the same time, with the possibility of complete parallelism disappears the need for a parallelistic view. For, if our two series are in the end structures which are not disparate but the same in type, the objection to admitting interaction between them falls.

Against all this we have to set three main considerations, which figure in all the parallelistic theories as the chief objections to interaction. (1) There can be no interaction between absolutely disparate realities. The reply is obvious. If the realities are really absolutely disparate, neither can there be exact correspondence ; to correspond at all, even as symbol and meaning, they must have a nature which is in some respects the same. But unless the disparateness is ultimate and absolute, it is not of itself a proof that there can be no interaction. The force of this dilemma is so manifest that we shall see the absolute disparateness denied by the best advocates of parallelism themselves.

(2) It is said that interaction between the mental and the physical must from its supposed character be ultimately unintelligible. Apart from general objections to the intelligibility of any transeunt action, which would be irrelevant to our special question, the objection seems to mean no more, as Dr. Ward has said, than that the interaction cannot be described in purely psychological, nor yet in purely physical terms. The connexion cannot be a psychical one, nor yet can it be a physical one. This is of course obvious, but one does not see why it should be considered to have any weight as an objection to interaction. Such a criticism comes at least with a very bad grace from philosophers who confidently declare that, on their own theory, both series are aspects of an identity about which we can only say that it is not mental and again not bodily. So far as the objection contains anything beyond this obvious reflexion, it seems to rest on the conviction that *purely* physical or *purely* psychical causality is somehow self-evidently intelligible, and this is a point we shall have to deal with again later on.

(3) The one really telling argument against interaction is that if it is admitted it involves a breach with the purely mechanical theories of natural process. It is often said that

the difficulty is caused in particular by the conflict of interaction with the principle of the Conservation of Energy. This is however a mistake, as is pointed out in different ways by both Stout and Münsterberg. The principle of Conservation, by itself, tells us nothing as to the actual transformations undergone by the energy of a system in its successive phases. It merely asserts that, whatever the transformations may be, there is always a quantitative equality of the total energy differently distributed throughout a conservative material system. And again, as Stout observes, the principle if affirmed without restriction is hypothetical. Of itself it makes no assertion as to the reality or unreality of systems which are not conservative. Hence, it does not seem in principle absurd, with Lotze and others, to hold that interaction with maintenance of an unchanged *quantum* of energy is possible. How an immaterial agency, interacting with a material system, would affect it we have no means of knowing, *a priori*, and are not entitled to deny that its interference might determine the nature of the transformations of the system's energy without altering its quantity. I cannot but see in the confidence with which Höfding and Ebbinghaus, among contemporary psychologists, treat the principle of Conservation as of itself excluding the possibility of interaction a proof of inferiority to Stout and Münsterberg in general philosophical insight.

It is, however, clearly true that, if interaction is admitted, there will be a breach with the system of mechanical hypotheses to which the principle of Conservation belongs considered as a whole. And this is a point I would not merely admit but insist on. If there is any single process in the universe which is not completely determined in every respect by purely physical conditions, we have no good ground for holding that any process is ultimately so determined, and we shall have to give up regarding the hypotheses of mechanical Physics as ultimate philosophic truths. But why not? As such writers as Stout and Münsterberg show, it is not with the ascertained fact that the processes of the physical world are described by the mechanical hypothesis with sufficient accuracy for purposes of calculation and prediction that interaction conflicts, but only with the metaphysical assumption that mechanical principles give us the last word about the inmost nature of those processes. It is not physical science, but the mechanical metaphysics erected upon the assumption that mechanism is a complete and adequate account of natural process which must be pronounced defective if there is action of soul on body, and *vice versa*. And for my own

part, so far from being dismayed at the consequence, I should be surprised if it were not so. The system of mechanical physical hypotheses has been formed by express and intentional exclusion of all processes which can be recognised as teleological, and especially of psychophysical processes, from the facts to be examined; its results have been derived from exclusive contemplation of those simple natural processes which appear to us at least to be devoid of purpose and inner significance. Hence I should expect it to prove inadequate when applied to the case of all others in which significance and purpose loom largest. To my own mind, the fact that a theory of mind and body was compatible with a purely mechanical view of the universe would create at least a fair presumption against it. And thus the very feature of the interaction doctrine which is most commonly adduced as its condemnation would to me tell powerfully in its favour.

The question, in fact, resolves itself into the more ultimate one whether the double aspect theory of reality is finally intelligible. I assume, of course, as is regularly done by the supporters of the view, that one of the aspects is to be mechanical. Then the question arises, whether one of your two aspects is to be subordinate in point of truth to the other. If you say, with Ebbinghaus, that there is to be no subordination, that teleology and mechanism are equally significant and equally true as ways of looking at the world, a double difficulty arises. Human action, on such a view, is of course just as mechanical as the movement of a falling stone. Our purposes and ethical struggles are there indeed, but they make no difference whatever; everything goes on exactly as if mechanism were the sole truth. I do not see how such a view can escape the consequence that consciousness is a mere "epiphenomenon," and purposive action a pure illusion. We think our acts do make a difference, that but for our volition things would not be as they are, but we are all the time mistaken. Our will effects nothing beyond itself; it never leads to a real act at all.¹ A sounder philosopher than Ebbinghaus, Bosanquet, cannot be acquitted of falling at times into the same position. When Prof. Bosanquet speaks in the last chapter of his *Psychology of the Moral Self* of "the whole process of nature as being instrumental to the development of that which is of spiritual value," he carries me with him, though I do not see how this can be reconciled with the

¹ Dr. Shadworth Hodgson's theory in his *Metaphysic of Experience* appears to me to bring out this point forcibly. Volition is with him always successful, just because it is never really operative.

doctrine of parallelism, but when he says elsewhere that "the spiritual view is that which regards experience as a mechanically intelligible whole," I must suppose that he has forgotten the significance of his other declaration. For, if "mechanical" here means what it usually does when the processes of nature are declared to be merely mechanical, then "mechanically intelligible" must mean intelligible without reference to an inner unity of purpose or significance, and therefore not spiritual. And if it means "intelligible as a true machine is intelligible," we have to remember that no true machine is a whole at all; it is a subordinate instrument in the execution of purposes imposed on it from without, requiring purposive action from without both to set it at work and to regulate its behaviour. In a word, whatever is a true machine, just because it is such, must be thought of as interacting, and that on terms of inferiority, with something which is not a machine.

Again, if your two aspects are equally true, why do you trouble to have two at all when one would be as good? And where does their difference fall? Are they merely accidental aspects in an Herbartian sense, differences of subjective standpoint on our own part, to which nothing in the character of the contemplated object corresponds? Still the difference is none the less really there, and calls for some sort of justification. Presumably, if we make a distinction, it is because we have already found a disparity to which we wish to give intelligible expression. Or are we, in the fashion of Mill, to fall back on an "ultimate inexplicability" whenever we wish to maintain the inexplicable? On the other hand, if we cannot escape in the end declaring one of our aspects to contain deeper truth than the other, there can be no doubt which must be treated as subordinate and relatively false. For you cannot intelligibly treat purposive action as low-level mechanism, whereas mechanism, as the case of our own secondarily automatic acts shows, can be easily understood as a degraded form of teleology. In the case of acquired habits, the only case where we have a glimpse into the actual formation of mechanical reaction, we find the mechanical always as the lower limit of the purposive, the type to which originally teleological reaction approximates in proportion as it becomes sufficiently fixed to permit of the withdrawal of attention. Thus acquired habits both of mind and of body illustrate the presence in both mind and body of an aspect of mechanism in the true sense of the word, *vis.*, routine execution of reactions which form a subordinate factor in the performance of acts which as whole acts are

teleological. In this sense, both body and mind present a real analogy with a genuine machine.¹

But two points must be carefully noted. Not only is the mechanical act, wherever we can trace its genesis, genetically a degraded teleological act, but the approximation to the purely mechanical type seems never to be so complete in the case of mental as in the case of bodily process. Even an association of ideas never seems to become so purely dependent on established routine, and so independent of the needs of the present situation as a thoroughly well fixed physical habit. Apperception seems, in a decently rational mind, to dominate association much more completely than adaptation ever succeeds in dominating physical habituation. But, if so, then the relative significance of mechanism for the bodily and the mental series will not be the same. Mechanism, if not the full truth anywhere, will be the truth about the physical to a quite other degree than about the psychical. The full working out of this view would lead to a theory of the function of mechanism which would put it much in the same place as the element of passivity in the various stages of the hierarchy of Monads in Leibniz. It would come to be thought of as an ideal lower level, in all probability never actually reached, but sufficiently approximated to in the infra-organic world to admit of the successful calculation of natural processes by the aid of purely mechanical hypotheses, but increasingly departed from as we ascend in the scale of existence through the organic to the clearly self-conscious and rational. We should thus see the philosophic reason why the success of the mechanical hypothesis in Physics is no logical ground for anticipating an equal success in Psychophysics. How this view can be applied to the case of inorganic Nature is a question which does not concern us here; it is enough to refer to Ward and Royce among recent philosophers as able exponents of it. Its importance for our psychophysical problem is obvious. For it absolutely denies the exact point-to-point correspondence which is the *sine quâ non* of the parallelistic doctrine. It asserts, at the same time, that body and soul are to be conceived as objects of the same general teleological type, but of very different levels of structural development, and

¹ I am glad to be able to call attention to the close resemblance between my own views and some of the positions adopted in Prof. Royce's *The World and the Individual*, series ii. Had Prof. Royce's book come into my hands at the time this paper was written, I should undoubtedly have been under considerable obligations to his treatment of the problems of the "world of description".

thus prepares us to hold that the relation between them must be thought of in the natural and obvious way as one of interaction, unless special reasons to the contrary can be produced. The formula which would most aptly express our position would be that of Beneke, that the soul is an organism of the same type as the body, but of a higher level of organisation and therefore of internal coherence, or the profound saying of Leibniz that the body is a "momentary soul". And I should draw the important consequence that the relation pointed to by this formula seems at least to be one of partial and only partial dependence, and therefore that the problems dismissed as unmeaning by Bosanquet of the seat of the soul and its possible pre-existence or survival are perfectly legitimate, and indeed ultimately unavoidable.

There still remains, of course, the ultimate metaphysical question whether transeunt action in any case is conceivable. Now, from the purely psychophysical standpoint this question appears irrelevant. For one thing seems quite clear; Psychophysics, in spite of the philosophical problems it suggests, is a purely empirical science. If interaction proves the least unsatisfactory hypothesis for the co-ordination of its special facts, it is entitled just as Physics is to waive the metaphysical problem. At the same time I should like to refer in passing to what seem to me the final possibilities in Metaphysics. If transeunt action is either more than phenomenal, or, again, is a phenomenon *bene fundatum*, interaction, I have urged, is vindicated; if not, then the case of soul and body cannot be separated from the other cases of apparent transeunt action, and we shall have either to deny the existence of order and system in the world, or to fall back with Leibniz on some theory of a general pre-established harmony between the states of reals which are actually independent. In spite of the ridicule which has been cast on this view, it seems to me far more philosophical than the neo-Spinozistic metaphysics usually advocated by believers in parallelism, and I confess I should feel compelled to adopt it, if I were convinced that Pluralism were metaphysically sound.

III.

To come now to the examination of recent parallelistic arguments from the point of view which we have just reached. Of the three psychologists we have singled out for discussion, it will, I think, be found that Stout adopts the most reasonable general position. Ebbinghaus, while much cruder in his philosophical attitude than either of the others,

is a truer representative of the bulk of the supporters of parallelism, and illustrates most clearly the weaknesses inherent in the doctrine as currently held ; while Münsterberg is probably the most convincing, if once you admit the peculiar philosophical position from which he starts. Agreeing in the main with the philosophical view of Stout, I find myself led by it to reject his conclusion ; if I could agree with those of Münsterberg, I should find it hard to dissent from his results. Ebbinghaus I am compelled to regard as on the whole, in this part of his work, the victim of a series of plausible but superficial philosophical fallacies.

To begin then with the Englishman. The great merits of his discussion, to my mind, are the clearness with which he realises that interaction cannot be dismissed on the strength of the Conservation of Energy, and the candour with which the tentative character of his parallelistic result is avowed. But this very candour may reasonably lead us to suspect that Stout's grounds for rejecting interaction may not be so solid as they appear at first sight. This is, indeed, I believe the case. The argument may be summarised in the following sentences from the third chapter of Stout's *Manual*. "The kind of interaction presupposed is utterly incongruous with the conception of causation on which the whole system of our knowledge both of physical and psychical process is based. It is the function of science to explain how events take place, in other words to make their occurrence intelligible ; . . . we must exhibit cause and effect as parts of one and the same continuous process . . . to explain is to exhibit a fact as the resultant of its factors. . . . Now when we come to the direct connexion between a nervous and a correlated conscious process, we find a complete solution of continuity. The two processes have no common factor. . . . No reason in the world can be assigned why the change produced in the grey substance of the cortex by light of a certain wave-length should be accompanied by the sensation *red*, and why that produced by light of a different wave-length should be accompanied by the sensation green. It is equally unintelligible that a state of volition should be followed by a change in the substance of the cortex and so mediately by the contraction of a muscle."¹

Now, so far as this reasoning amounts to the general reflexion that a psychophysical transaction cannot be fully accounted for by purely physical nor yet by purely psychical laws, we have seen already that it has no weight as an objec-

¹ *Manual*, 2nd ed., pp. 46, 47.

tion to interaction. Its further implication is one of the utmost importance, and must be fully examined. The argument seems to turn entirely on an identification of causal explanation with the reduction of all sequences to continuous processes determined by numerical equations. For wherever you have the emergence at any stage of a process of what is qualitatively new, you have, *ipso facto*, a solution of that kind of logical continuity which Stout demands. You can never say why a readjustment of numerical relations should involve the appearance at just this point of just this new quality. Now all causation, I would submit, depends upon this very solution of continuity effected by the emergence of new qualities. In merely quantitative change considered as such there is nothing which enables you to distinguish between cause and effect; you have temporal continuity, and you have your equations, and that is all. It is only the further fact that new qualities appear at certain stages which makes it proper to speak of the process as a causal one at all. The whole paradox of causation lies in the fact that it involves a synthesis of the quantitatively or numerically continuous with the qualitatively discrete. And the successes of Physics are due to the fact that it consistently refuses to take the qualitative aspect of processes into account; it treats the qualitative side by abstraction as though it were not there. Hence the expulsion of the category and name of causation from Physics by thinkers of the school of Kirchhoff and Mach who are seriously concerned to attain logical consistency in their views of method. Hence again the necessity for Physics of regarding all qualities as secondary and subjective.

But, if consistency is got within the sphere of Physics by relegating all qualitative differences to the psychical side of things, we are at once confronted by a double difficulty of the most formidable kind. First, you have now, if you are a parallelist, to maintain a point-to-point correspondence between the qualitative psychical process and the purely non-qualitative physical process, or, in other words, to be ready to find qualitative equations corresponding to each of your physical equations between quantities. Next, and this seems a very serious difficulty, the very inexplicability which led you to deny interaction breaks out again within the qualitative or psychical series itself. Every psychical sequence is a sequence of qualities; the effect is here always something qualitatively different from the cause, and no fact can be exhibited as the "resultant of its factors" in the sense in which the phrase was used in the previous argumenta-

tion. The solution of continuity which you declared fatal to interaction is no less fatal to psychical connexion. Hence, if Stout's premisses were sound, he ought, it seems, like Münsterberg, to deny the causal connexion of one psychical state with another. His argument leads direct to the conclusion that psychical states are not directly connected, and that the causal connexion between them is a merely indirect one effected "through the body". Unless this step is taken, every succession of mental states seems to give rise to a problem of the same kind as that created by the sequence of a sensation green on a change in the cortex. But if we do take this step, we expose ourselves to the objections urged with, as I think, unanswerable cogency by Stout himself against one-sided causation.

With the more general argument against recognising the operation of a "factor which does not belong to the material world at all" it is not necessary to deal at length. I will just observe that the very wording of the argument is such as to suggest a *petitio principii*. The real question is as to whether we have a right, in strict logic, to talk of the material "world" at all. The philosophers who reject the metaphysics of the Double Aspect hold that you have not. The material, they contend, is only given to us as a factor in experience which is throughout in interrelation with an immaterial factor. And when you sever the two you find that the material element considered in itself exhibits, in many ways, all the marks of incompleteness. It is something which requires for its own comprehension the recognition of its thorough-going dependence on something else, and apart from that Other is in the last resort a congeries of contradictions. Hence it is inevitable that somewhere in experience you should come on cases where the treatment of the material as a self-subsisting and self-contained whole breaks down. The introduction somewhere into your phenomenal science of a non-material factor is, on this view, an obvious necessity which might have been predicted *a priori*. Thus to speak of the material "world" at all, if you mean what you say, is by implication to decide the question in advance in your own sense.

When we come to the metaphysical explanation of parallelism we find that Stout himself shares the general position of the immaterialists. The material world turns out to be no world at all, but a mere factor in a larger whole of which we cannot say very much, but can at least say that it is immaterial. In particular we are told that we must not assume that "the system of immaterial agency which we

know as matter" has the type of interaction which our physical science ascribes to matter, and it was added in the first edition of the *Manual* that we shall be nearer the truth in calling it consciousness than in calling it matter.¹ In other words, it turns out to be, what I have contended that it is, a structure of the same general type as the mental system, but of an inferior grade. What then becomes of the point-to-point correspondence of the mental series with a special part of the physical series, which is the foundation of the parallelistic hypothesis, or of the alleged disparateness which was to exclude interaction between the two series? Interaction seems to me decidedly the more natural interpretation of the facts from the philosophical standpoint of the author himself.

An examination of the pages devoted to the subject of Soul and Body by Ebbinghaus (*Psychologie*, i., 27-47) will be less fruitful in raising fundamental questions, but extremely instructive as affording illustrations of the loose kind of argumentation by which interaction is often supposed to be refuted, and the vague analogies which are complacently offered in proof of the rival theory. As before, we may begin with the objections urged against interaction; these, rather than any positive grounds for asserting parallelism, being usually treated by psychologists of the parallelist persuasion as sufficient to decide the question. Ebbinghaus begins with a statement of the every-day unscientific form of the belief in interaction, in which there is little to complain of except the assumption that the belief, as held by the ordinary man, includes the doctrine of a "free will of indifference," at least within certain ill-defined limits. He thus gets the opportunity to prejudice the case for interaction a little unfairly by involving it in the fortunes of extreme Indeterminism. Possibly this arises from the assumption that mechanical determination and sheer indetermination are exhaustive alternatives. He next goes on to rest his rejection of interaction exclusively on the principle of Conservation, though the

¹ This last remark has significantly disappeared from Dr. Stout's second edition. By its disappearance his "immaterial system" becomes, for all I can see, a mere Kantian "thing-in-itself" of the constitution of which we know absolutely nothing, and which can therefore hardly come as an explanation of psychophysical parallelism, or indeed of anything else. It is perhaps worthy of note that a further change in the second edition of the *Manual* is the interpolation in the same context of a paragraph (p. 53) which attenuates Dr. Stout's "idealism" by explaining it away to mean no more than that "whatever exists must be knowable". I suspect most "idealists" have usually meant a great deal more than this by their doctrine.

details of his argument suggest that it is principally the second law of Thermodynamics, that of the Dissipation of Energy, which he really has in view. After a general statement of what is understood by Conservation, he goes on to observe that the mechanical energy of the organism is approximately constant, and adds, what of course assumes the point at issue with regard to the existence or non-existence of non-conservative systems, that if we could take into account the whole of the dynamical transactions between the organism and its environment from birth to death, we should find exact conformity to the principle of Conservation. Next, he infers that interaction is incompatible with Conservation, but only by means of associating with the principle of Conservation the whole body of mechanical principles required for the complete determination of a material configuration. Interference with a material system by an immaterial factor would, he says, imply the new creation of energy. Or if you suppose the interference to take the form of an alteration of direction with finite but negligible expenditure of work, it still follows that by such repeated interferences the total energy of the organism might ultimately be increased, and a man would be a sort of perpetual motion machine. Now, all this is, no doubt, true ; but Ebbinghaus has not, in the first place, shown that there is any reason, beyond a general prejudice in favour of a mechanical philosophy, for regarding the psychophysical complex as a conservative system. Nor, in the next, is his argument that change of direction necessarily involves alteration of the existing *quantum* of energy convincing. For we may conceive our immaterial factor acting, like Clerk Maxwell's famous demon, so as to change the direction of a movement without doing work, or after the fashion of a force acting at right angles to the direction of motion. Or we may suppose that somehow there is compensation on the whole for any disturbance. Again, when Ebbinghaus treats it as a sort of *reductio ad absurdum* to say that the theory makes a man into a *perpetuum mobile*, he tends to forget that more than one respectable philosophy has taught that the soul is precisely this, and that no one can prove the contrary, as Dr. Ward has recently reminded us, until the law of Dissipation of Energy has been shown to be valid for living organisms. In failing to see that it is this law which is at stake, and that unless it is valid the *reductio ad absurdum* does not hold, Ebbinghaus gives evidence of a grave want of thoroughness which is still further exhibited by his light-hearted observation that such possibilities cannot be seriously entertained.

The one possibility he thinks serious enough for examination is just the one which a sound philosophical insight would have rejected by instinct, the notion of mental action as itself one form of energy with its mechanical equivalent in foot-pounds. He rightly points out that, on the view which is apparently his own, that all energy is either energy of actual motion or of position, this would imply the doctrine that the mental series itself is really a series of changes of configuration in a qualityless material system, and that thus the whole body of qualitative experiences which are saved from extinction, on the current mechanical theory, by being labeled subjective, would become an unintelligible mystery. What he apparently does not see is, that, even apart from this particular view as to the nature of non-kinetic energy, the inclusion of the psychical series in the mechanical system means the fatalistic determination of human conduct by external circumstances.

At the end of this string of objections to interaction, Ebbinghaus pauses to reply to the pertinent criticism that we are not warranted in building our psychology on either the doctrine of Conservation or the mechanical interpretation of Nature. His reply amounts to saying that we are bound to avail ourselves of the most adequate scientific hypotheses procurable, even if we cannot regard them as finally established truths. And the fundamental importance of both these assumptions in the physical sciences shows that they are more than mere hypotheses. The rejoinder, however, either misses the point or begs the question, as you like to take it. It does not of itself follow that because physical science does its work best by the help of the mechanical theory, Psychology will succeed by the same means. It all depends on your general philosophical view as to the amount of truth there is in a mechanical theory of the world. If all reality is mechanical in the same sense and to the same degree, then of course the same thorough-going mechanical scheme which serves so well for Physics will be equally necessary for Psychology. But if the whole notion of merely mechanical process is philosophically unmeaning, we may expect to find that mechanical assumptions which work within a certain sphere become sources of positive mischief if applied outside it, and until we have attacked the problem, we clearly cannot tell whether Psychology may not be the point at which the inadequacies of a mechanical conception of reality first become palpable. The appeal to the success of mechanical explanation in other fields then simply assumes the issue which is at stake.

Ebbinghaus goes on to affirm that the true theory of the relation between body and mind must be one of Identity; this he says has been, in the last resort, the view of almost all philosophers. But the identical reality can be neither material nor spiritual. With the former alternative we need concern ourselves no further here; what are Ebbinghaus's reasons for rejecting the "spiritualist," i.e., idealistic interpretation of the facts? It would hardly be credible if one could not turn to the printed page, but he has nothing more cogent to urge than that the soul must be thought of as simple and indivisible, and localisation shows that there is no such simple and indivisible subject. "Spiritualism is forced therefore to admit that, so far as the souls have any mutual knowledge of one another, spatiality and materiality must be ascribed to them essentially and in the strictest sense." Why the idealist must suppose the soul to be atomic, or again how the facts of localisation would prove the soul itself to be extended there is not a word to show; until these points have been made a great deal clearer, I fancy we who regard ourselves as in principle idealists shall hardly feel greatly disturbed by this new "Refutation of Idealism". Ebbinghaus next tries to make the meaning of an identity with two aspects clearer by an illustration. We are asked to imagine a set of spherical or ellipsoidal coats, one inside another. These surfaces are to be conscious. The various parts of the same coat, it is assumed, will appear to one another as concave. At the same time each coat will be experienced by those surrounding it as convex. While finally the human spectator from without perceives that they are at once concave and convex. It is a pleasing parable, but one does not precisely see the analogy with the case of soul and body. In the first place, there is no outside spectator in our case who can reveal to us from the standpoint of his superior knowledge the unity of the inner and outer aspects, and surely this ought to make some difference. In the second, there is in the symbol precisely that identity of character which is wanted for point-to-point correspondence, and which we miss in the reality the symbol is meant to illustrate. The convex and the concave are at least both alike in being determinations of a common type of extension, capable of study by means of the same geometrical methods; so much at least we should expect our intelligent spherical surfaces to discover for themselves. And when you come to look at things from the point of view of the mathematician who sees both upper and under surface, he can exhibit their unity by showing how the equation which gives a curve or

surface concave towards an axis or axes may, by merely changing the origin of co-ordinates, be transformed into an equation giving convexity towards the same axes. This is something like genuine parallelism, and if we had anything equivalent to it among the facts of our psycho-physics, the parallelist might regard his case as proved. But in actual fact the illustration might almost have been devised for the purpose of showing what we have not got. We have a series of spatial and quantitative changes in the configuration of a system of extended parts on the one side, on the other a series of changes in a qualitative manifold, non-spatial and unextended, and forming no mere assemblage of parts but a self-conscious whole. Indeed the whole amount of correspondence which we have to set against the common geometrical character of our concave and convex curves or surfaces seems to be that the various members of the mental and bodily series are synchronous. Instead of being able to shift our origin of co-ordinates, so to say, and thus show how at will to derive the one aspect of the identity from the other, we have to treat their correlation as a "fundamental inexplicability". If it were possible to make the illustration still more unhappy than it is, Ebbinghaus's own interpretation has done so. For he goes on to identify the convex aspect of his surfaces at once with external reality as seen and felt, and with the purely quantitative processes of mechanical Physics. "In so far as things can be seen and felt . . . we have, for outer intuition, a closed sequence of mechanical thermic chemical and other processes." But these processes themselves, forgetful of the difficulty created by their qualitative differences, he declares to be in the end purely mechanical. They must therefore be devoid of secondary qualities, and therefore in their nature incapable of being intuited at all. Also the consequence is drawn, as it must be from the premisses, that mechanism and intelligence are equally true and equally fundamental in the universe. It is just as true to interpret mind in terms of mechanism with the *Système de la Nature* as to interpret Nature in terms of mind with Plato or Hegel; a position on which I have said already all I desire to say.

Finally, Ebbinghaus, like other supporters of the identity doctrine, tries to pull down the scaffolding from his edifice. There is no disparateness after all between the material and the mental, for they are both mere complexes of presentations. It is suggestive to compare this utterance with the much more philosophical expression of the same view in Stout. Stout is of course careful to distinguish between the perceived

qualities of the physical world and its non-phenomenal reality, which Ebbinghaus's careless expression crudely identifies. If the latter is to be taken at his word, his final philosophical view must be mere Subjectivism both as regards the outer world and as regards the self.

It is a pleasure to pass from these inconclusive reasons and fallacious analogies to the work of Prof. Münsterberg.¹ Münsterberg's metaphysics may be good or bad, but in either case they have been consciously and carefully thought out, and his doctrine of psychophysical connexion deduced from them with extraordinary skill and minuteness. Even if one rejects the metaphysics and the deduction from them together, one at least always feels that to know why one disagrees with Münsterberg is a great step towards really knowing one's own mind on things philosophical, and this is more than can be said of any but the most distinguished writers on philosophical topics. To examine his views thoroughly is almost impossible without entering on a general criticism of his whole psychological position, but I will do my best to summarise his argument, so far as it bears directly on our special subject. The peculiarity of his philosophical attitude is that he holds at once views which are commonly thought to be antithetic; he believes, on the one hand, that real life is through and through teleological, and that all descriptive and explanatory science is necessarily purely mechanical. Description and explanation are only possible on condition we make entire abstraction from the relation to the life of individual purposes which constitutes the reality of the real world, and treat the things to be described and explained as mere given objects, independent of any relation to the willing self, and mutually connected by merely mechanical laws. For Psychology this means that the teleological unity of a real mental life must be replaced by the conception of consciousness as a succession of presented contents, which in the last resort can be analysed completely into sensation complexes. Anything in the nature of a selective attention, or self with an inner unity of purpose, incapable of being treated as a mere complex function of given sensation must be rigidly excluded from scientific Psychology; to admit it would be to confuse the artificial creations of descriptive science with the real facts of active life.

The problem of psychical connexion then is not concerned with actual facts but solely with the products of an

¹ *Psychologie*, i., pp. 402-436.

elaborate transformation of the facts, undertaken with a view to their description and explanation on rigidly mechanical lines. Psychology has not to discover *the* connexion between the states it studies, but to invent a connexion suitable for descriptive and explanatory purposes. Now this connexion between mental states can never be a causal one. For causality implies persistent identity, and also quantitative equivalence. And no mental state persists or recurs a second time; also, as each state, from the very nature of the artificial scheme implied in the construction of a Psychology, exists only for a single "subject-act," no quantitative relations can be established between mental states. Therefore the connexion between successive states must be always indirect and must be somehow effected through the body. Münsterberg insists emphatically that, apart from these general epistemological considerations, there would be no valid reason to prefer a parallelistic hypothesis to one of interaction or even of Occasionalism. The empirically ascertained facts, as he shows triumphantly, will equally well fit any type of theory, and that for the excellent reason that we state them to begin with in terms which already involve a theory. And as to the Conservation of Energy, he remarks that if it be accepted merely as a result of empirical research, the extension of it to the facts of the organic realm is unwarranted, but if stated as part of a general postulate that all scientific explanation shall proceed on mechanical lines, it is a consequence of the epistemological view as to the nature of all explanation previously adopted by himself.

On epistemological grounds, then, and on such grounds only, we must decide for a parallelistic hypothesis of a type which will co-ordinate mental states, themselves non-quantitative and devoid of any causal relations, with definite stages in a causal series of physical events. How is this possible? Physical objects and processes in general exist for and can be observed by any number of different consciousnesses, whereas the very differentia of a psychical state is that it is only accessible to a single individual consciousness. How, then, are we to correlate the essentially individual with the essentially supra-individual? Münsterberg replies that there is one physical object which has the peculiarity of existing at once in two entirely different ways, and thus being at once individual and supra-individual, and that is my brain and nervous system. For the anatomist my brain is one physical object among others, capable like them of description in general terms, and of being actually exhibited to the collective perception of a plurality of consciousnesses

at once. At the same time my brain as it is, not for the anatomist who may dissect it, but for myself, is marked off from all other physical objects by the fact that it is the one and only object of perception which I in particular am for ever debarred from perceiving. This unique peculiarity makes my brain for myself an individual object in the strictest sense. The problem of psychical connexion will then be solved if every state of the individual consciousness can be resolved into elements definitely correlated with elementary processes in the individual brain, that is, into sensation complexes. Now Münsterberg believes himself to have shown that this analysis is, in any case, imposed on us by the conditions of psychological description. Hence rigid parallelism is the only doctrine of psychical connexion which is in complete accord with his general theory of the nature of psychological problems.

The following points must be specially noted as characteristic of his view. The question of psychophysical connexion becomes for him secondary; quite apart from the problem of mind and body, his result is dictated by the need of establishing indirectly some connexion between psychical states themselves. The brain, in the sense in which it serves as the medium for this connexion, is expressly declared to be the brain as it is for me whose brain it is, not as it is for the anatomist who dissects it or constructs diagrams of its parts. Ordinary statements of the parallelistic doctrine are, Münsterberg holds, excessively crude in their neglect of this vital distinction. It is through the process of introjection which is brought about by the establishment of correlation between mental state and brain process that it becomes possible to give the purely timeless mental state a place in the time series; it belongs to the time series, as to the spatially extended, only in a secondary way through its brain process. The precise nature of the relation between the associated states cannot be explained further than by saying that it is "purely logical". In particular, we are not to suppose that the physical state causes its correlate. All causation, on Münsterberg's view, is interrelation in the permanent and quantitative, and therefore in the physical. These will, I think, be found to be the leading ideas of Münsterberg's wonderfully subtle deduction of parallelism from philosophical first principles.

And now what is to be said about the whole deduction? First it must be remarked that the reasoning turns entirely on the assumption that a descriptive and explanatory science must work with purely mechanical categories. Mental life,

therefore, must be viewed by the psychologist solely as a mechanically determined sequence of states, not as possessed of a conscious purposive unity. If we ask why this is so, we shall be told that for Psychology mental processes form a datum or "given," and must therefore be considered in abstraction from their meaning or value for a self. But why may we not regard the typical or generalised self with its motives and ends as itself the psychologist's given? Because Münsterberg systematically assumes that the only possible method of description and explanation is by analysis into atomic elements, and a self with any real teleological unity is something which resists such analysis. Of course, if you once make the admission that atomistic analysis is the only scientific method of description or explanation, the consequence at once follows. Having got your atoms, nothing remains but to piece them together again into mechanically constituted systems. A whole which is not the mere sum of its parts will have no place in your reconstruction. But why should the assumption be made to begin with? The presence of biology among the "descriptive" sciences of itself suggests that description and atomistic analysis need not be identified. In general we may surely say what kind of terms you will use for purposes of description will depend on the purposes for which your description is undertaken. Münsterberg's restriction of the name description to analysis into atoms seems due to nothing more than a notion that the only way to describe an object is to indicate a number of presentations out of which the presentation of it may be built up. "But then you will be permitting one and the same science to confuse mechanical and teleological principles of interpretation, and this is intolerable." To confuse them, No, but to use them certainly, Yes. For, if mechanism is really low-grade teleology, as we have already urged, it is certain that somewhere in the universe of describable processes we shall reach a point where mechanism will no longer serve us as a principle for the formulation of our facts, but must give place to explicit teleology. And, if this point should fall somewhere within the realm of the psychical, of course a complete Psychology will have to use both mechanical and teleological categories, the former for routine and habitual, the latter for novel purposive action. Whether such a transition must be effected within Psychology can only, so far as I can see, be decided by the good or ill success of the attempt to work out a purely mechanical psychological theory; the question must not be answered in the negative on the strength of a general prejudice about

scientific method. In other words, unless all description arises from the same motives as the descriptions of physical science, we cannot assume that it must be subject to the same logical restrictions.

Nor should I be averse to the proposal to judge the possibilities of a mechanical Psychology by the actual achievement of Prof. Münsterberg. For it will, I contend, be found that his psychological scheme is only got to work by an indirect reintroduction at the end of his construction of that very teleology he began by banning. In his description of the psychical objects he is extremely careful to exclude every vestige of the teleological character. They are to be states mechanically sequent on one another but possessed neither of purpose nor meaning. The consciousness studied by the psychologist is to be a cognition which knows nothing, a volition which wills nothing. For my own part, I admit the consequence follows on a theory which reduces attention and emotion to secondary complexes of sensational elements, but I should deny the necessity of the reduction itself. If you carry it out, you seem to be in the paradoxical position of undertaking for motives of a practical kind (such as the anticipation of the future, in so far as it is independent of your own intervention, which Münsterberg regards as the chief incentive to the task of scientific description and explanation) a transformation of the actual facts which renders them positively unrecognisable. If the fundamental truth about real mental life is its teleological and non-mechanical character, how can you hope to understand it better by translating it into mechanical sequence? Philosophically the whole procedure seems to rest on nothing better than the prejudice that the only kind of unity which can be described in general terms is that of a system of differentiations; if it is possible to form a general conception of a unity which shall be what Dr. McTaggart calls a centre of differentiations, and to apply the concept to the facts of empirical Psychology, the methodological argument for mechanical atomism in mental science falls to the ground.

Nor is it the case that Münsterberg's mechanism will really work, even within the limits laid down by himself. He does, no doubt, formally get rid of selective attention and so of purpose, but it is only to reintroduce them at the end of his construction in a biological disguise. When he comes fairly face to face with the question, to use his own words, who is it who decides in the last resort what, in particular, the content of consciousness shall be at any given moment, he rejects the Apperceptionist's answer, "the soul," as intro-

ducing the teleological categories of real life into the region of mechanical science. But what is his own answer? It is that attention, and consequently consciousness, is determined at each moment by the actual state of the subcortical motor centres. A sensory process is attended to, and so becomes conscious, when its motor-process inhibits the antagonistic motor-process. But when we go on to ask more closely what determines which motor innervation shall at this instant inhibit its antagonist, we find ourselves face to face with a dilemma, which however solved means the abandonment of the mechanical scheme. "An anatomically pre-established connexion" may explain how in general attention is effected; it cannot explain why at this moment I attend to one thing rather than another. To deal with this last problem, involving as it does the whole *rationale* of intelligent origination of fresh adaptation, we seem forced either to introduce a psychological selective factor or to graft on the anatomical apparatus itself all those qualities of a teleological kind which we began by excluding on principle from the objects of descriptive science. In short, unless we can reconcile ourselves to the view that the physical organisation represents a higher grade of teleology than the mental, Münsterberg's motor machinery turns out to be a mere alias for what the rest of us are accustomed to call the "soul". And, in either case, we have broken with the mechanical assumptions which were declared to be the only tenable ground for rejecting interaction.

This conclusion will, I think, be confirmed by a brief examination of the *Sonderstellung* which the brain receives in Münsterberg's parallelistic theory. The brain, through which my mental states are to be connected, is to be the brain, not as capable of dissection or of description in general terms, but as an object strictly individual and existing exclusively for its possessor. But in what sense does my brain possess this peculiar kind of existence? It can hardly be true that the mere fact of my inability to see my own brain constitutes a genuine principle of individuation, as Münsterberg's language would lead us to suppose. For all that can be said on this ground of my brain might equally be said of the small of my back. I cannot directly see the small of my back (or we might say the crown of my own head, if we like), any more than my own brain; and if I can see the reflexion of these parts in the glass, or again can touch them, so, if an opening were made in my skull, I could touch, or, with a suitable arrangement of mirrors, indirectly see the cortex of my brain. Even the subcortical motor centres, which play so important a part in Münsterberg's psychological theory,

stand in this respect in the same position as other inaccessible parts of my own internal organs, *e.g.*, the inside of my own heart. The principle of individuation, then, which is to make my brain a unique thing in the universe, is not merely negative; it must have a positive character unshared by anything else. That is, we must say, my brain is unique not because of what it is not, but because of what it is; not because I cannot make it an object of perception, but because I directly experience it in some other and incommunicable way. The two statements sound superficially alike, but there is logically a world of difference between them. Now what is my "brain" as thus directly and incommunicably experienced? It is simply another name for my whole mental life, or, to be quite plain, my mind. As such, it is incapable of description in terms of an atomistic and mechanical science, and has no true place in the scheme of physical objects declared by Münsterberg to be the only proper objects of physical study. My brain, in the only sense in which it can be known or studied at all, *a fortiori* in the only sense in which I can speak of co-ordinating psychical states with cerebral processes, is just my brain as dissected, described or charted by the anatomists. The correlation of mental life with the states of the brain in this sense would, if successful, be a genuine theory of psychophysical parallelism; but such a correlation has been declared by Münsterberg himself impossible in principle. The unique individual object of experience which he puts in its place is indistinguishable from the mind itself, and thus leaves nothing to be correlated. The proposed correlation would, in fact, amount to a string of identical propositions, $A = A$, $B = B$, and so forth. Meanwhile it should be instructive for those psychologists who do not accept atomistic analysis as the one lawful method in psychology that Münsterberg emphatically declares parallelism to be impossible unless all psychical fact can be translated into sensational complexes, thus from the enemy's camp confirming our contention that the aspect of significance itself, unless expelled from our psychological data, is irreconcilable with the parallelistic doctrine.

There remain as arguments against interaction, from Münsterberg's standpoint, only the alleged unquantitative and timeless character of mental states. As to the first point, the general question of the connexion between quality and causality has already been dealt with. If the view we have taken is sound, causal connexion of mental states with each other and with physical states does not demand that they shall have no qualitative differences and so be merely

quantitative, but merely that they shall have some quantitative character. This condition will be satisfied if they have even the single quantitative character of duration. (Of intensity I say nothing here, as it requires an analysis of the concept of quantity which I should not be competent to perform, even if space permitted of it, before we can decide that the so-called "intensive quantity" of the psychical is really quantitative at all.) As to the aspect of duration, it certainly seems to me that the psychologists who recognise it are entirely in the right. For it seems a baseless paradox to maintain that a mental state, for instance a pleasure, only appears to last a longer or shorter time when we have ascertained something about the duration of its physical conditions. And, with respect to position in the time series, Münsterberg's one formidable argument, that the moment of immediate consciousness, being the point from which temporal distances and directions are estimated, cannot itself have a position in the series, really seems like contending that since the positions of points in space are indicated by taking co-ordinates with reference to an origin with zero co-ordinates, the origin itself has no position. For every point may be a Here in exactly the same sense in which every moment may be a Now. Further, if the mental state as such has no temporal position, how does it ever get one? There must be some reason why it is assigned to the same time as this one particular physical process rather than to another. This reason cannot be mere correspondence, which is what Münsterberg seems to mean by saying that the connexion is *rein logisch*. For both the process and the corresponding state may recur, and thus mere correspondence affords no means of distinguishing the earlier sensation, for instance, from its qualitatively indistinguishable replica. Psychology would thus be in the same position as a geometry which had absolutely no means of distinguishing different points on the same line. Now, if the basis of identification lies in the synchronism of the physical process and the mental state, everything at once becomes simple; if not, you have to take refuge in the assertion of a relation of purely logical "concomitance," of which one can say nothing except that it answers to no relation between propositions, and therefore is in no intelligible sense logical.

I have tried then to show that the contentions brought by recent psychologists against the notion of psychophysical interaction have no conclusive force, and that their own parallelistic constructions are one and all faulty when tried at the bar of logic. The result, if established, must be regarded as

subsidiary to the positive arguments which go to prove that only on a theory of interaction can room be found for mechanism and teleology in one world as higher and lower manifestations of a single principle. If both contentions are valid, they between them bring interaction as a principle in Cosmology under Bradley's canon that "what can be and must be therefore is". I should like to end this lengthy paper with two brief words of caution. The first is, that our result has only vindicated interaction as the best working theory within the limits imposed by a view of things which makes no pretension to be necessarily final. In the last resort interaction must share the same fate as transeunt causality in general. But there are many scientific and even philosophical purposes for which we may leave the metaphysical questions connected with transeunt causality out of consideration. Again, there are many psychological purposes—perhaps one might say it of most special psychological purposes—for which it is indifferent whether we elect for interaction or for parallelism. Thus, as far as the special psychological results of Stout or Ebbinghaus are concerned, it would have made no difference if they had rejected the parallelistic doctrine. It is, in the main, where we are dealing with broad practical questions as to the relation of human purpose to our human environment that a decision as to the relative truth of the views of human action to which the two theories logically lead becomes really important. The philosophical value of the interaction theory is thus, to my mind, that without necessarily proving purposive human activity ultimately real, it logically permits of our regarding it as at least a phenomenon *bene fundatum*, whereas parallelism, strictly interpreted, seems to reduce it to something unpleasantly like a mere illusion. Hence to commit ourselves in Psychology to parallelism would be wilfully to reject what is at least a higher relative truth.