

CHAPTER III

Of The Survival of Images.

Memory and Mind.

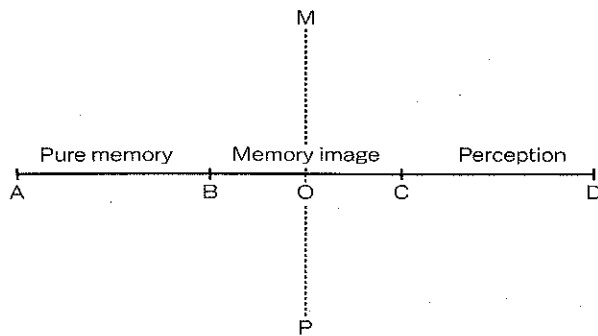


Fig. 2

To sum up briefly the preceding chapters: we have distinguished three processes, pure memory, memory-image and perception, of which none of them in fact, occurs apart from the others. Perception is never a mere contact of the mind with the object present; it is impregnated with memory-images which complete it as they interpret it. The memory-image, in its turn, partakes of the "pure memory," which it begins to materialize, and of the perception in which it tends to embody itself: regarded from the latter point of view, it might be defined as a nascent perception. Lastly, pure memory, though independent in theory, manifests itself as a rule only in the colored and living image which reveals it. Symbolizing these three terms by the consecutive segments AB, BC, CD, of the same straight line AD, we may say that our thought describes this line in a single movement, which goes from A to D, and that is impossible to say precisely where one of the terms ends and another begins.

In fact, this is just what consciousness bears witness to whenever, in order to analyze memory, it follows the movement of memory at work. Whenever we are trying to recover a recollection, to call up some period of our history, we become conscious

of an act *sui generis* by which we detach ourselves from the present in order to replace ourselves, first, in the past in general, then, in a certain region of the past — a work of adjustment, something like the focusing of a camera. But our recollection still remains virtual; we simply prepare ourselves to receive it by adopting the appropriate attitude. Little by little it comes into view like a condensing cloud; from the virtual state it passes into the actual; and as its outlines become more distinct and its surface takes on color, it tends to imitate perception. But it remains attached to the past by its deepest roots, and if, when once realized, it did not retain something of its original virtuality, if, being a present state, it were not also something which stands out distinct from the present, we should never know it for a memory.

The capital error of associationism is that it substitutes for this continuity of becoming, which is the living reality, a discontinuous multiplicity of elements, inert and juxtaposed. Just because each of the elements so constituted contains, by reason of its origin, something of what precedes and also of what follows, it must take to our eyes the form of a mixed and, so to speak, impure state. But the principle of associationism requires that each psychical state should be a kind of atom, a simple element. Hence the necessity for sacrificing, in each of the phases we have distinguished, the unstable to the stable, that is to say, the beginning to the end. If we are dealing with perception, we are asked to see in it nothing but the agglomerated sensations which color it and to overlook the remembered images which form its dim nucleus. If it is the remembered image that we are considering, we are bidden to take it already made, realized in a weak perception, and to shut our eyes to the pure memory which this image has progressively developed. In the rivalry which associationism thus sets up between the stable and the unstable, perception is bound to expel the memory-image, and the memory-image to expel pure memory.

And thus the pure memory disappears cutting in two by a line MO, the to in the part OD, only the sensation have been supposed to constitute' also reduces the part AO to the attains to as it expands. Psychology up in these two elements, on one hand, this theory drowns in the makes the image into an original state, and, brings the image yet closer to perception by putting tion, in advance, something of the image itself, it ends up by ing between these two states only a difference of degree, or of intensity. Hence the distinction between *strong states* and *weak states*, of which the first are supposed to be set up by us as perceptions of the present, and the second (why, no man knows) as representations of the past. But the truth is that we shall never reach the past unless we frankly place ourselves within it. Essentially virtual, it cannot be known as something past unless we follow and adopt the movement by which it expands into a present image, thus emerging from obscurity into the light of day. In vain do we seek its trace in anything actual and already realized: we might as well look for darkness beneath the light. This is, in fact, the error of associationism: placed in the actual, it exhausts itself in vain attempts to discover in a realized and present state the mark of its past origin, to distinguish memory from perception, and to erect into a difference in kind that which it condemned in advance to be but a difference of magnitude.

To picture is not to remember. No doubt a recollection, as it becomes actual, tends to live in an image; however, the converse is not true, and the image, pure and simple, will not be referred to the past unless, indeed, it was in the past that I sought it, thus following the continuous progress which brought it from dark-

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ness into light. This is what psychologists too often forget when they conclude, from the fact that a remembered sensation becomes more actual the more we dwell upon it, that the memory of the sensation is the sensation itself beginning to be. The fact which they allege is undoubtedly true: the more I strive to recall a past pain, the nearer I come to feeling it in reality. But this is easy to understand, since the progress of a memory precisely consists, as we have said, in its becoming materialized. The question is: was the memory of a pain, when it began, really pain? Because the hypnotized subject ends by feeling hot when he is repeatedly told that he is hot, it does not follow that the words of the suggestion were themselves hot. Neither must we conclude that, because the memory of a sensation prolongs itself into that very sensation, the memory was a nascent sensation: perhaps, indeed, this memory plays, with regard to the sensation which follows it, precisely the part of the hypnotizer who makes the suggestion. The argument we are criticizing, presented in this form, is then already of no value as proof; still, it is not yet a vicious argument because it profits by the incontestable truth that memory passes into something else by becoming actual. The absurdity becomes patent when the argument is inverted (although this ought to be legitimate on the hypothesis adopted), that is to say, when the intensity of the sensation is decreased instead of the intensity of pure memory being increased. For then, if the two states differ merely in degree, there should be a given moment at which the sensation changed into a memory. If the memory of an acute pain, for instance, is but a slight pain, inversely, an intense pain which I feel, will end, as it grows less, by being an acute pain remembered. Now the moment will come, undoubtedly, when it is impossible for me to say whether what I feel is a slight sensation, which I experience, or a slight sensation, which I imagine (and this is natural, because the memory-image is already partly sensation), but never will

this weak state appear to me to be the memory of a strong state. Memory, then, is something quite different.

But the illusion which consists in establishing only a difference of degree between memory and perception is more than a mere consequence of associationism, more than an accident in the history of philosophy. Its roots lie deep. It rests, in the last analysis, on a false idea of the nature and of the object of external perception. We are bent on regarding perception as only an instruction addressed to a pure spirit, as having a purely speculative interest. Then, as memory is itself essentially a knowledge of this kind, since its object is no longer present, we can only find between perception and memory a difference of degree — perceptions being then supposed to throw memories back into the past, and thus to reserve to themselves the present simply because right is might. But there is much more between past and present than a mere difference of degree. My present is that which interests me, which lives for me, and in a word, that which summons me to action; in contrast, my past is essentially powerless. We must dwell further on this point. By contrasting it with present perception we shall better understand the nature of what we call “pure memory.”

For we should endeavor in vain to characterize the memory of a past state unless we began by defining the concrete note, accepted by consciousness, of present reality. What is, for me, the present moment? The essence of time is that it goes by; time already gone by is the past, and we call the present the instant in which it goes by. But there can be no question here of a mathematical instant. No doubt there is an ideal present — a pure conception, the indivisible limit which separates past from future. But the real, concrete, live present — that of which I speak when I speak of my present perception — that present necessarily occupies a duration. Where then is this duration placed? Is it on the nearer or on the further side of the mathematical point which I determine ideally when I

think of the present instant? Quite evidently, it is both on this side and on that, and what I call "my present" has one foot in my past and another in my future. In my past, first, because "the moment in which I am speaking is already far from me"; in my future, next, because this moment is impending over the future: it is to the future that I am tending, and could I fix this indivisible present, this infinitesimal element of the curve of time, it is the direction of the future that it would indicate. The psychological state, then, that I call "my present," must be both a perception of the immediate past and a determination of the immediate future. Now the immediate past, in so far as it is perceived, is, as we shall see, sensation, since every sensation translates a very long succession of elementary vibrations, and the immediate future, in so far as it is being determined, is action or movement. My present, then, is both sensation and movement; since my present forms an undivided whole, then the movement must be linked with the sensation, must prolong it in action. Whence I conclude that my present consists in a joint system of sensations and movements. My present is, in its essence, sensori-motor.

This is to say that my present consists in the consciousness I have of my body. Having extension in space, my body experiences sensations and at the same time executes movements. Sensations and movements being localized at determined points of this extended body, there can only be, at a given moment, a single system of movements and sensations. That is why my present appears to me to be a thing absolutely determined, and contrasting with my past. Situated between the matter which influences it and that on which it has influence, my body is a center of action, the place where the impressions received choose intelligently the path they will follow to transform themselves into movements accomplished. Thus it, indeed, represents the actual state of my becoming, that part of my duration which is in process of growth.

More generally, in that continuity of becoming which is reality itself, the present moment is constituted by the quasi-instantaneous section effected by our perception in the flowing mass, and this section is precisely that which we call the material world. Our body occupies its center; it is, in this material world, that part of which we directly feel the flux; in its actual state the actuality of our present lies. If matter, so far as extended in space, is to be defined (as we believe it must) as a present which is always beginning again, inversely, our present is the very materiality of our existence, that is to say, a system of sensations and movements and nothing else. And this system is determined, unique for each moment of duration, just because sensations and movements occupy space, and because there cannot be in the same place several things at the same time. Why is it that it has been possible to misunderstand so simple, so evident a truth, one which is, moreover, the very idea of common sense?

The reason lies simply in the fact that philosophers insist on regarding the difference between actual sensations and pure memory as a mere difference in degree, and not in kind. In our view the difference is radical. My actual sensations occupy definite portions of the surface of my body; pure memory, on the other hand, interests no part of my body. No doubt, it will beget sensations as it materializes, but at that very moment it will cease to be a memory and pass into the state of a present thing, something actually lived. I shall then only restore to it its character of memory by carrying myself back to the process by which I called it up, as it was virtual, from the depths of my past. It is just because I made it active that it has become actual, that is to say, a sensation capable of provoking movements. But most psychologists see in pure memory only a weakened perception, an assembly of nascent sensations. Having thus effaced, to begin with, all difference in kind between sensation and memory, they are led by the logic of their hypothe-

sis to materialize memory and to idealize sensation. They perceive memory only in the form of an image, that is to say, already embodied in nascent sensations. Having thus attributed to it that which is essential to sensation, and refusing to see in the ideality of memory something distinct, something contrasted with sensation itself, they are forced, when they come back to pure sensation, to leave to it that ideality with which they have thus implicitly endowed nascent sensations. For if the past, which by hypothesis is no longer active, can subsist in the form of a weak sensation, there must be sensations that are powerless. If pure memory, which by hypothesis interests no definite part of the body, is a nascent sensation, then sensation is not essentially localized in any point of the body. Hence the illusion that consists in regarding sensation as an ethereal and unextended state which acquires extension and consolidates in the body by mere accident: an illusion which vitiates profoundly, as we have seen the theory of external perception and raises a great number of the questions at issue between the various metaphysics of matter. We must make up our minds to it: sensation is, in its essence, extended and localized; it is a source of movement. Pure memory, being inextensive and powerless, does not in any degree share the nature of sensation.

That which I call my present is my attitude with regard to the immediate future; it is my impending action. My present is, then, sensori-motor. Of my past, that alone becomes image and, consequently, sensation, at least nascent, which can collaborate in that action, insert itself in that attitude, in a word make itself useful; but, from the moment that it becomes image, the past leaves the state of pure memory and coincides with a certain part of my present. Memory actualized in an image differs, then, profoundly from pure memory. The image is a present state, and its sole share in the past is the memory from which it arose. Memory, on the contrary, powerless as long as it remains without utility, is pure

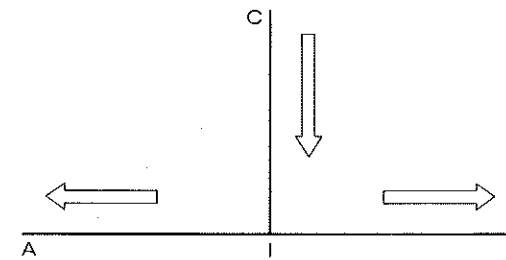
from all admixture of sensation, is without attachment to the present, and is, consequently, unextended.

This radical powerlessness of pure memory is just what will enable us to understand how it is preserved in a latent state. Without as yet going to the heart of the matter, we will confine ourselves to the remark that our unwillingness to conceive *unconscious psychical states* is due, above all, to the fact that we hold consciousness to be the essential property of psychical states: so a psychical state cannot, it seems, cease to be conscious without ceasing to exist. But if consciousness is but the characteristic note of the *present*, that is to say, of the actually lived, in short, of the *active*, then that which does not act may cease to belong to consciousness without therefore ceasing to exist in some manner. In other words, in the psychological domain, consciousness may not be the synonym of existence, but only of real action or of immediate efficacy; limiting thus the meaning of the term, we shall have less difficulty in representing to ourselves a psychical state which is unconscious, that is to say, ineffective. Whatever idea we may frame of consciousness in itself, such as it would be if it could work untrammelled, we cannot deny that, in a being which has bodily functions, the chief office of consciousness is to preside over action and to enlighten choice. Therefore, it throws light on the immediate antecedents of the decision, and on those past recollections which can usefully combine with it; all else remains in shadow. But we find here once more, in a new form, the ever-recurrent illusion which, throughout this work, we have endeavored to dispel. It is supposed that consciousness, even when linked with bodily functions, is a faculty that is only accidentally practical and is directed essentially toward speculation. Then, since we cannot see what interest, devoted as it is supposed to be to pure knowledge, it would have in allowing any information that it possesses to escape, we fail to understand why it refuses to throw light on

something that was not entirely lost to it. From this we conclude that it can possess nothing more *de jure* than what it holds *de facto*, and that, in the domain of consciousness, all that is real is actual. But restore to consciousness its true role: there will no longer be any more reason to say that the past effaces itself as soon as perceived than there is to suppose that material objects cease to exist when we cease to perceive them.

We must insist on this last point, for here we have the central difficulty, and the source of the ambiguities which surround the problem of the unconscious. The idea of an *unconscious representation* is clear, despite current prejudice; we may even say that we make constant use of it, and that there is no conception more familiar to common sense. For every one admits that the images actually present to our perception are not the whole of matter. But, on the other hand, what can be a nonperceived material object, an image not imagined, unless it is a kind of unconscious mental state? Beyond the walls of your room, which you perceive at this moment, there are the adjoining rooms, then the rest of the house, finally the street and the town in which you live. It signifies little to which theory of matter you adhere; realist or idealist, you are evidently thinking, when you speak of the town, of the street, of the other rooms in the house, of so many perceptions absent from your consciousness and yet given outside of it. They are not created as your consciousness receives them; they existed, then, in some manner, and since, by hypothesis, your consciousness did not apprehend them, how could they exist in themselves unless in the unconscious state? How comes it then that an *existence outside of consciousness* appears clear to us in the case of objects, but obscure when we are speaking of the subject? Our perceptions, actual and virtual, extend along two lines, the one horizontal, AB, which contains all simultaneous objects in space, the other vertical, CI, on which are ranged our successive recollections set out

Fig. 3



in time. The point I, at the intersection of the two lines, is the only one actually given to consciousness. Whence comes it that we do not hesitate to posit the reality of the whole line AB, although it remains unperceived, while, on the contrary, of the line CI, the present I which is actually perceived is the only point which appears to us really to exist? There are, at the bottom of this radical distinction between the two series, temporal and spatial, so many confused or half-formed ideas, so many hypotheses devoid of any speculative value, that we cannot all at once make an exhaustive analysis of them. In order to unmask the illusion entirely, we should have to seek its origin and follow through all its windings, the double movement by which we come to assume objective realities without relation to consciousness, and states of consciousness without objective reality – space thus appearing to preserve indefinitely the *things* which are there juxtaposed, while time in its advance devours the *states* which succeed each other within it. Part of this work has been done in our first chapter, where we discussed objectivity in general; another part will be dealt with in the last pages of this book, where we shall speak of the idea of matter. We confine ourselves here to a few essential points.

First, the objects ranged along the line AB represent to our eyes what we are going to perceive, while the line CI contains only that which has already been perceived. Now the past has no longer any interest for us; it has exhausted its possible action or will only recover an influence by borrowing the vitality of the present perception. The immediate future, on the contrary, consists in an impending action, in an energy not yet spent. The unperceived part of the material universe, big with promises and threats, has then for us a reality which the actually unperceived periods of our past existence cannot and should not possess. But this distinction, which is entirely relative to practical utility and to the material needs of life, takes in our minds the more and more marked form of a metaphysical distinction.

We have shown that the objects which surround us represent, in varying degrees, an action which we can accomplish upon things or which we must experience from them. The date of fulfilment of this possible action is indicated by the greater or lesser remoteness of the corresponding object, so that distance in space measures the proximity of a threat or of a promise in time. Thus space furnishes us at once with the diagram of our near future, and, as this future must recede indefinitely, space which symbolizes it has for its property to remain, in its immobility, indefinitely open. Hence the immediate horizon given to our perception appears to us to be necessarily surrounded by a wider circle, existing though unperceived, this circle itself implying yet another outside it and so on, ad infinitum. It is, then, of the essence of our actual perception, inasmuch as it is extended, to be always only a *content* in relation to a vaster, even an unlimited, experience which contains it; this experience, absent from our consciousness, since it spreads beyond the perceived horizon, nevertheless, appears to be actually given. But while we feel ourselves to be dependent upon these material objects which we thus erect into present real-

ities, our memories, on the contrary, inasmuch as they are past, are so much dead weight that we carry with us, and by which we prefer to imagine ourselves unencumbered. The same instinct, in virtue of which we open out space indefinitely before us, prompts us to shut off time behind us as it flows. And while reality, in so far as it is extended, appears to us to overpass infinitely the bounds of our perception, in our inner life that alone seems to us to be *real* which begins with the present moment; the rest is practically abolished. Then, when a memory reappears in consciousness, it produces on us the effect of a ghost whose mysterious apparition must be explained by special causes. In truth, the adherence of this memory to our present condition is exactly comparable to the adherence of unperceived objects to those objects which we perceive; and *the unconscious* plays in each case a similar part.

But we have great difficulty in representing the matter to ourselves in this way because we have fallen into the habit of emphasizing the differences and, on the contrary, of slurring over the resemblances, between the series of *objects* simultaneously set out in space and that of *states* successively developed in time. In the first, the terms condition each other in a manner which is entirely determined, so that the appearance of each new term may be foreseen. Thus I know, when I leave my room, what other rooms I shall go through. However, my memories present themselves in an order which is apparently capricious. The order of the representations is then necessary in the one case, contingent in the other; it is this necessity which I hypostatize, as it were, when I speak of the existence of objects outside of all consciousness. If I see no inconvenience in supposing, given the totality of objects which I do not perceive, it is because the strictly determined order of these objects lends to them the appearance of a chain, of which my present perception is only one link. This link communicates its actuality to the rest of the chain. But, if we look at the matter closely,

we shall see that our memories form a chain of the same kind, and that our character, always present in all our decisions, is indeed the actual synthesis of all our past states. In this epitomized form our previous psychical life exists for us even more than the external world, of which we never perceive more than a very small part, whereas, on the contrary, we use the whole of our lived experience. It is true that we possess merely a digest of it, and that our former perceptions, considered as distinct individualities, seem to us to have completely disappeared or to appear again only at the bidding of their caprice. But this semblance of complete destruction or of capricious revival is due merely to the fact that actual consciousness accepts at each moment the useful and rejects in the same breath the superfluous. Ever bent upon action, it can only materialize those of our former perceptions which can ally themselves with the present perception to take a share in the final decision. If it is necessary, when I would manifest my will at a given point of space, that my consciousness should go successively through those intermediaries or those obstacles of which the sum constitutes what we call *distance in space*, so, on the other hand, it is useful, in order to throw light on this action, that my consciousness should jump the interval of time which separates the actual situation from a former one which resembles it; and as consciousness goes back to the earlier date at a bound, all the intermediate past escapes its hold. The same reasons, then, which cause our perceptions to range themselves in strict continuity in space, cause our memories to be illumined discontinuously in time. We have not, in regard to objects unperceived in space and unconscious memories in time, to do with two radically different forms of existence, but the exigencies of action are the inverse in the one case of what they are in the other.

But here we come to the capital problem of *existence*, a problem we can only glance at, for otherwise it would lead us step by

step into the heart of metaphysics. We will merely say that with regard to matters of experience — which alone concern us here — existence appears to imply two conditions taken together: (1) presentation in consciousness and (2) the logical or casual connection of that which is so presented with what precedes and with what follows. The reality for us of a psychical state or of a material object consists in the double fact that our consciousness perceives them and that they form part of a series, temporal or spatial, of which the elements determine each other. But these two conditions admit of degrees, and it is conceivable that, though both are necessary, they may be unequally fulfilled. Thus, in the case of actual internal states, the connection is less close, and the determination of the present by the past, leaving ample room for contingency, has not the character of a mathematical derivation — but then, presentation in consciousness is perfect, an actual psychical state yielding the whole of its content in the act itself, whereby we perceive it. On the contrary, if we are dealing with external objects it is the connection which is perfect, since these objects obey necessary laws; but then the other condition, presentation in consciousness, is never more than partially fulfilled, for the material object, just because of the multitude of unperceived elements by which it is linked with all other objects, appears to enfold within itself and to hide behind it infinitely more than it allows to be seen. We ought to say, then, that existence, in the empirical sense of the word, always implies conscious apprehension and regular connection; both at the same time, although in different degrees. But our intellect, of which the function is to establish clear-cut distinctions, does not so understand things. Rather than admit the presence in all cases of the two elements mingled in varying proportions, it prefers to dissociate them, and thus attribute to external objects, on the one hand, and to internal states, on the other hand, two radically different modes of exist-

tence, each characterized by the exclusive presence of the condition which should be regarded as merely preponderating. Then the existence of psychical states is assumed to consist entirely in their apprehension by consciousness, and that of external phenomena, entirely also, in the strict order of their concomitance and their succession. Whence the impossibility of leaving to material objects, existing, but unperceived, the smallest share in consciousness, and to internal unconscious states the smallest share in existence. We have shown, at the beginning of this book, the consequences of the first illusion: it ends by falsifying our representation of matter. The second illusion, complementary to the first, vitiates our conception of mind by casting over the idea of the unconscious an artificial obscurity. The whole of our past psychical life conditions our present state, without being its necessary determinant; whole, also, it reveals itself in our character, although none of its past states manifests itself explicitly in character. Taken together, these two conditions assure to each one of the past psychological states a real, though an unconscious, existence.

But we are so much accustomed to reverse, for the sake of action, the real order of things, we are so strongly obsessed by images drawn from space, that we cannot hinder ourselves from asking *where* memories are stored up. We understand that physico-chemical phenomena take place *in* the brain, that the brain is *in* the body, the body *in* the air which surrounds it, etc.; but the past, once achieved, if it is retained, where is it? To locate it in the cerebral substance, in the state of molecular modification, seems clear and simple enough because then we have a receptacle, actually given, which we have only to open in order to let the latent images flow into consciousness. But if the brain cannot serve such a purpose, in what warehouse shall we store the accumulated images? We forget that the relation of container to content borrows its apparent clearness and universality from the necessity laid

upon us of always opening out space in front of us and of always closing duration behind us. Because it has been shown that one thing is within another, the phenomenon of its preservation is not thereby made any clearer. We may even go further: let us admit for a moment that the past survives in the form of a memory stored in the brain; it is then necessary that the brain, in order to preserve the memory, should preserve itself. But the brain, insofar as it is an image extended in space, never occupies more than the present moment: it constitutes, with all the rest of the material universe, an ever-renewed section of universal becoming. Either, then, you must suppose that this universe dies and is born again miraculously at each moment of duration, or you must attribute to it that continuity of existence which you deny to consciousness, and make of its past a reality which endures and is prolonged into its present. So that you have gained nothing by depositing the memories in matter, and you find yourself, on the contrary, compelled to extend to the totality of the states of the material world that complete and independent survival of the past which you have just refused to psychical states. This survival of the past *per se* forces itself upon philosophers, then, under one form or another; the difficulty that we have in conceiving it comes simply from the fact that we extend to the series of memories, in time, that obligation of *containing* and *being contained* which applies only to the collection of bodies instantaneously perceived in space. The fundamental illusion consists in transferring to duration itself, in its continuous flow, the form of the instantaneous sections which we make in it.

But how can the past, which, by hypothesis, has ceased to be, preserve itself? Have we not here a real contradiction? We reply that the question is just whether the past has ceased to exist or whether it has simply ceased to be useful. You define the present in an arbitrary manner as *that which is*, whereas the present is sim-

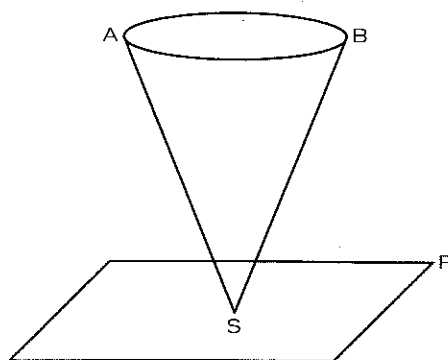
ply *what is being made*. Nothing is less than the present moment, if you understand by that the indivisible limit which divides the past from the future. When we think this present as going to be, it exists not yet, and when we think it as existing, it is already past. If, on the other hand, what you are considering is the concrete present such as it is actually lived by consciousness, we may say that this present consists, in large measure, in the immediate past. In the fraction of a second which covers the briefest possible perception of light, billions of vibrations have taken place, of which the first is separated from the last by an interval which is enormously divided. Your perception, however instantaneous, consists then in an incalculable multitude of remembered elements; in truth, every perception is already memory. *Practically, we perceive only the past*, the pure present being the invisible progress of the past gnawing into the future.

Consciousness, then, illumines, at each moment of time, that immediate part of the past which, impending over the future, seeks to realize and to associate with it. Solely preoccupied in thus determining an undetermined future, consciousness may shed a little of its light on those of our states, more remote in the past, which can be usefully combined with our present state, that is to say, with our immediate past: the rest remains in the dark. It is in this illuminated part of our history that we remain seated, in virtue of the fundamental law of life, which is a law of action: hence the difficulty we experience in conceiving memories which are preserved in the shadow. Our reluctance to admit the integral survival of the past has its origin, then, in the very bent of our psychical life — an unfolding of states wherein our interest prompts us to look at that which is unrolling, and not at that which is entirely unrolled.

So we return, after a long digression, to our point of departure. There are, we have said, two memories which are profoundly

distinct: the one, fixed in the organism, is nothing else but the complete set of intelligently constructed mechanisms which ensure the appropriate reply to the various possible demands. This memory enables us to adapt ourselves to the present situation; through it the actions to which we are subject prolong themselves into reactions that are sometimes accomplished, sometimes merely nascent, but always more or less appropriate. Habit rather than memory, it acts our past experience but does not call up its image. The other is the true memory. Coextensive with consciousness, it retains and ranges alongside of each other all our states in the order in which they occur, leaving to each fact its place and, consequently, marking its date, truly moving in the past and not, like the first, in an ever renewed present. But, in marking the profound distinction between these two forms of memory, we have not shown their connecting link. Above the body, with its mechanisms which symbolize the accumulated effort of past actions, the memory which imagines and repeats has been left to hang, as it were, suspended in the void. Now, if it be true that we never perceive anything but our immediate past, if our consciousness of the present is already memory, the two terms which had been separated to begin with cohere closely together. Seen from this new point of view, indeed, our body is nothing but that part of our representation which is ever being born again, the part always present, or rather that which, at each moment, is just past. Itself an image, the body cannot store up images, since it forms a part of the images, and this is why it is a chimerical enterprise to seek to localize past or even present perceptions in the brain: they are not in it; it is the brain that is in them. But this special image which persists in the midst of the others, and which I call my body, constitutes at every moment, as we have said, a section of the universal becoming. It is then the *place of passage* of the movements received and thrown back, a hyphen, a connecting link between the things which act upon me

Fig. 4



and the things upon which I act – the seat, in a word, of the sensori-motor phenomena. If I represent by a cone SAB, the totality of the recollections accumulated in my memory, the base AB, situated in the past, remains motionless, while the summit S, which indicates at all times my present, moves forward unceasingly, and unceasingly also touches the moving plane P of my actual representation of the universe. At S, the image of the body is concentrated, and, since it belongs to the plane P, this image does but receive and restore actions emanating from all the images of which the plane is composed.

The bodily memory, made up of the sum of the sensori-motor systems organized by habit, is then a quasi-instantaneous memory to which the true memory of the past serves as base. Since they are not two separate things, since the first is only, as we have said, the pointed end, ever moving, inserted by the second in the shifting plane of experience, it is natural that the two functions should lend each other a mutual support. So, on the one hand, the memory of the past offers to the sensori-motor mechanisms all the recollections capable of guiding them in their task and of giving to the motor reaction the direction suggested by the lessons of experi-

ence. It is in just this that the associations of contiguity and likeness consist. But, on the other hand, the sensori-motor apparatus furnish to ineffective, that is unconscious, memories, the means of taking on a body, of materializing themselves, in short of becoming present. For, that a recollection should reappear in consciousness, it is necessary that it should descend from the heights of pure memory down to the precise point where *action* is taking place. In other words, it is from the present that the appeal to which memory responds comes, and it is from the sensori-motor elements of present action that a memory borrows the warmth which gives it life.

Is it not by the constancy of this agreement, by the precision with which these two complementary memories insert themselves each into the other, that we recognize a “well-balanced” mind, that is to say, in fact, a man nicely adapted to life? The characteristic of the man of action is the promptitude with which he summons to the help of a given situation all the memories which have reference to it; yet it is also the insurmountable barrier which encounters, when they present themselves on the threshold of his consciousness, memories that are useless or indifferent. To live only in the present, to respond to a stimulus by the immediate reaction which prolongs it, is the mark of the lower animals: the man who proceeds in this way is a man of *impulse*. But he who lives in the past for the mere pleasure of living there, and in whom recollections emerge into the light of consciousness without any advantage for the present situation, is hardly better fitted for action: here we have no man of impulse, but a *dreamer*. Between these two extremes lives the happy disposition of memory docile enough to follow with precision all the outlines of the present situation, but energetic enough to resist all other appeal. Good sense, or practical sense, is probably nothing but this.

The extraordinary development of spontaneous memory in most

children is due to the fact that they have not yet persuaded their memory to remain bound up with their conduct. They usually follow the impression of the moment, and as with them action does not bow to the suggestions of memory, so neither are their recollections limited to the necessities of action. They seem to retain with greater facility only because they remember with less discernment. The apparent diminution of memory, as intellect develops, is then due to the growing organization of recollections with acts. Thus conscious memory loses in range what it gains in force of penetration: it had at first the facility of the memory of dreams, but then it was actually dreaming. Indeed we observe this same exaggeration of spontaneous memory in men whose intellectual development hardly goes beyond that of childhood. A missionary, after preaching a long sermon to some African savages, heard one of them repeat it textually, with the same gestures, from beginning to end.¹

But, if almost the whole of our past is hidden from us because it is inhibited by the necessities of present action, it will find strength to cross the threshold of consciousness in all cases where we renounce the interests of effective action to replace ourselves, so to speak, in the life of dreams. Sleep, natural or artificial, brings about an indifference of just this kind. It has been recently suggested that in sleep there is an interruption of the contact between the nervous elements, motor and sensory.² Even if we do not accept this ingenious hypothesis, it is impossible not to see in sleep a relaxing, even if only functional, of the tension of the nervous system, ever ready, during waking hours, to prolong by an appropriate reaction the stimulation received. Now the exaltation of the memory in certain dreams and in certain somnambulistic states is well known. Memories, which we believed abolished, then reappear with striking completeness; we live over again, in all their detail, forgotten scenes of childhood; we speak languages which

we no longer even remember to have learned. But there is nothing more instructive in this regard than what happens in cases of sudden suffocation, in men drowned or hanged. Such a man, when brought to life again, states that he saw, in a very short time, all the forgotten events of his life passing before him with great rapidity, with their smallest circumstances and in the very order in which they occurred.³

A human being who should *dream* his life instead of living it would no doubt thus keep before his eyes at each moment the infinite multitude of the details of his past history. And, conversely, the man who should repudiate this memory with all that it begets would be continually acting his life instead of truly representing it to himself: a conscious automaton, he would follow the lead of useful habits which prolong into an appropriate reaction the stimulation received. The first would never rise above the particular, or even above the individual; leaving to each image its date in time and its position in space, he would see wherein it *differs* from others and not how it resembles them. The other, always swayed by habit, would only distinguish in any situation that aspect in which it practically *resembles* former situations; incapable, doubtless, of *thinking* universals, since every general idea implies the representation, at least virtual, of a number of remembered images, he would, nevertheless, move in the universal, habit being to action what generality is to thought. But these two extreme states, the one of an entirely contemplative memory which apprehends only the singular in its *vision*, the other of a purely motor memory which stamps the note of generality on its *action*, are really separate and are fully visible only in exceptional cases. In normal life they are interpenetrating, so that each has to abandon some part of its original purity. The first reveals itself in the recollection of differences, the second in the perception of resemblances: at the meeting of the two currents appears the general idea.

We are not concerned here to settle once for all the whole question of general ideas. Some have not originated in perception alone, and have but a very distant connection with material objects. We will leave these on one side and consider only those general ideas that are founded on what we have called the perception of similarity. We will try to follow pure memory, integral memory, in the continuous effort which it makes to insert itself into motor habit. In this way we may throw more light upon the office and nature of this memory, and perhaps make clearer, at the same time, by regarding them in this particular aspect, the two equally obscure notions of *resemblance* and of *generality*.

If we consider as closely as possible the difficulties of a psychological order which surround the problem of general ideas, we shall come, we believe, to enclose them in this circle: to generalize, it is first of all necessary to abstract, but to abstract to any purpose we must already know how to generalize. Round this circle gravitate, consciously or unconsciously, nominalism and conceptualism, each doctrine having in its favor mainly the insufficiency of the other. The nominalists, retaining of the general idea only its extension, see in it merely an open and unlimited series of individual objects. The unity of the idea can then, for them, consist only in the identity of the symbol by which we designate indifferently all these distinct objects. According to them, we begin by perceiving a thing, and then we assign to it a word: this word, backed by the faculty or the habit of extending itself to an unlimited number of other things, then sets up for a general idea. But, in order that the word should extend and yet limit itself to the objects which it designates, it is necessary that these objects should offer us resemblances which, when we compare them, shall distinguish them from all the objects to which the word does not apply. Generalization does not, consequently, occur without our taking into account qualities that have been found to be common

and therefore considered in the abstract; from step to step, nominalism is thus led to define the general idea by its intention and not merely by its extension, as it set out to do. It is just from this intention that conceptualism starts; the intellect, in this theory, resolves the superficial unity of the individual into different qualities, each of which, isolated from the individual who limited it, becomes by that very isolation representative of a genus. Instead of regarding each genus as including *actually* a multiplicity of objects, it is now maintained, on the contrary, that each object involves *potentially*, and as so many qualities which it holds captive, a multiplicity of genera. But the question before us is whether individual qualities, even isolated by an effort of abstraction, do not remain individual, and whether, to make them into genera, a new effort of the mind is not required, by which it first bestows on each quality a name, and then collects under this name a multitude of individual objects. The whiteness of a lily is not the whiteness of a snowfield; they remain, even as isolated from the snow and the lily, snow-white or lily-white. They only forego their individuality if we consider their likeness in order to give them a common name; then, applying this name to an unlimited number of similar objects, we throw back upon the quality, by a sort of *ricochet*, the generality which the word went out to seek in its application to things. But, reasoning in this way, do we not return to the point of view of extension, which we just now abandoned? We are then, in truth, revolving in a circle, nominalism leading us to conceptualism, and conceptualism bringing us back to nominalism. Generalization can only be effected by extracting common qualities; however, that qualities should appear common, they must have already been subjected to a process of generalization.

Now, when we get to the bottom of these two opposite theories, we find in them a common postulate; each will have it that we start from the perception of individual objects. The first com-

poses the genus by an enumeration; the second disengages it by an analysis; but it is upon individuals, considered as so many realities given to immediate intuition, that both analysis and enumeration are supposed to bear. This is the postulate. In spite of its apparent obviousness, we must expect to find, and we do indeed find, that experience belies it.

A priori, indeed, we may expect the clear distinction of individual objects to be a luxury of perception, just as the clear representation of general ideas is a refinement of the intellect. The full conception of genera is no doubt proper to human thought; it demands an effort of reflection, by which we expunge from a representation the details of time and place. But the reflection on these details — a reflection without which the individuality of objects would escape us — presupposes a faculty of noticing differences, and therefore, a memory of images, which is certainly the privilege of man and of the higher animals. It would seem, then, that we start neither from the perception of the individual nor from the conception of the genus, but from an intermediate knowledge, from a confused sense of the *striking quality* or of resemblance: this sense, equally remote from generality fully conceived and from individuality clearly perceived, begets both of them by a process of dissociation. Reflective analysis clarifies it into the general idea; discriminative memory solidifies it into a perception of the individual.

But this will be more clearly evident if we go back to the purely utilitarian origin of our perception of things. That which interests us in a given situation, that which we are likely to grasp in it first, is the side by which it can respond to a tendency or a need. But a need goes straight to the resemblance or quality; it cares little for individual differences. To this discernment of the useful we may surmise that the perception of animals is, in most cases confined. It is grass *in general* which attracts the herbivorous ani-

mal: the color and the smell of grass, felt and experienced as forces (we do not go so far as to say, thought as qualities or genera), are the sole immediate data of its external perception. On this background of generality or of resemblance the animal's memory may show up contrasts from which will issue differentiations; it will then distinguish one countryside from another, one field from another field; but this is, we repeat, the superfluity of perception, not a necessary part. It may be urged that we are only throwing the problem further back, that we are merely relegating to the unconscious the process by which similarity is discovered and genera are constituted. But we relegate nothing to the unconscious for the very simple reason that it is not, in our opinion, an effort of a psychological nature which here disengages similarity; this similarity acts objectively like a force and provokes reactions that are identical in virtue of the purely physical law which requires that the same general effects should follow the same profound causes. Hydrochloric acid always acts in the same way upon carbonate of lime whether in the form of marble or of chalk yet we do not say that the acid perceives in the various species the characteristic features of the genus. Now there is no essential difference between the process by which this acid picks out from the salt its base and the act of the plant which invariably extracts from the most diverse soils those elements that serve to nourish it. Make one more step; imagine a rudimentary consciousness such as that of an amoeba in a drop of water: it will be sensible of the resemblance, and not of the difference, in the various organic substances which it can assimilate. In short, we can follow from the mineral to the plant, from the plant to the simplest conscious beings, from the animal to man, the progress of the operation by which things and beings seize from their surroundings that which attracts them, that which interests them practically, without needing any effort of abstraction, simply because the rest of their surroundings takes

no hold upon them: this similarity of reaction following actions superficially different is the germ which the human consciousness develops into general ideas.

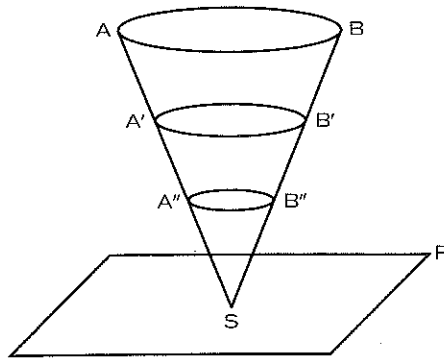
Consider, indeed, the purpose and function of our nervous system as far as we can infer them from its structure. We see a great variety of mechanisms of perception, all bound, through the intermediary of the centers, to the same motor apparatus. Sensation is unstable; it can take the most varied shades; the motor mechanism, on the contrary, once set going, will invariably work in the same way. We may then suppose perceptions as different as possible in their superficial details: if only they are continued by the same motor reactions, if the organism can extract from them the same useful effects, if they impress upon the body the same attitude, something common will issue from them, and the general idea will have been felt and passively experienced, before being represented. Here then we escape at last from the circle in which we at first appeared to be confined. In order to generalize, we said, we have to abstract similarity, but in order to disengage similarity usefully we must already know how to generalize. There really is no circle because the similarity, from which the mind starts when it first begins the work of abstraction, is not the similarity at which the mind arrives when it consciously generalizes. That from which it starts is a similarity felt and lived, or, if you prefer the expression, a similarity which is automatically acted. That to which it returns is a similarity intelligently perceived, or thought. And it is precisely in the course of this progress that are built up, by the double effort of the understanding and of the memory, the perception of individuals and the conception of genera — memory grafting distinctions upon resemblances which have been spontaneously abstracted, the understanding disengaging from the habit of resemblances the clear idea of generality. This idea of generality was, in the beginning, only our consciousness of a like-

ness of attitude in a diversity of situations; it was habit itself, mounting from the sphere of movement to that of thought. But from genera so sketched out mechanically by habit we have passed by an effort of reflection upon this very process, to the *general idea of genus*; and when that idea has been once constituted, we have constructed (this time voluntarily) an unlimited number of general notions. It is not necessary here to follow the intellect into the detail of this construction. It is enough to say that the understanding, imitating the effort of nature, has also set up motor apparatuses, artificial in this case, to make a limited number of them answer to an unlimited number of individual objects: the assemblage of these mechanisms is articulate speech.

Yet these two divergent operations of the mind, the one by which it discerns individuals, the other by which it constructs genera, are far from demanding the same effort or progressing with the same rapidity. The first, requiring only the intervention of memory, takes place from the outset of our experience; the second goes on indefinitely without ever reaching its goal. The first emerges in the formation of stable images, which in their turn are stored up in memory; the second comes out in representations that are unstable and evanescent. We must dwell on this last point, for we touch here an essential problem of mental life.

The essence of the general idea, in fact, is to be unceasingly going backwards and forwards between the plane of action and that of pure memory. Let us refer once more to the diagram we traced above. At S is the present perception which I have of my body, that is to say, of a certain sensori-motor equilibrium. Over the surface of the base AB are spread, we may say, my recollections in their totality. Within the cone so determined, the general idea oscillates continually between the summit S and the base AB. In S, it would take the clearly defined form of a bodily attitude or of an uttered word; at AB, it would wear the aspect, no less

Fig. 5



defined, of the thousand individual images into which its fragile unity would break up. And that is why a psychology which abides by the *already done*, which considers only that which is made and ignores that which is in the making, will never perceive in this movement anything more than the two extremities between which it oscillates; it makes the general idea coincide sometimes with the action which manifests it or the word which expresses it and at other times with the multitudinous images, unlimited in number, which are its equivalent in memory. But the truth is that the general idea escapes us as soon as we try to fix it at either of the two extremities. It consists in the double current which goes from the one to the other — always ready either to crystallize into uttered words or to evaporate into memories.

This amounts to saying that between the sensori-motor mechanisms figured by the point S and the totality of the memories disposed in AB there is room, as we indicated in the preceding chapter, for a thousand repetitions of our psychical life, figured by as many sections A'B', A''B'', etc., of the same cone. We tend to scatter ourselves over AB in the measure that we detach ourselves from our sensory and motor state to live in the life of dreams; we tend

to concentrate ourselves in S in the measure that we attach ourselves more firmly to the present reality, responding by motor reactions to sensory stimulation. In point of fact, the normal self never stays in either of these extreme positions; it moves between them, adopts in turn the positions corresponding to the intermediate sections, or, in other words, gives to its representations just enough image and just enough idea for them to be able to lend useful aid to the present action.

From this conception of the lower mental life, the laws of the association of ideas can be deduced. But, before we deal with this point, we must first show the insufficiency of the current theories of association.

That every idea which arises in the mind has a relation of similarity or of contiguity with the previous mental state, we do not dispute; but a statement of the kind neither throws light on the mechanism of association nor, indeed, does it really tell us anything at all. For we should seek in vain for two ideas which have not some point of resemblance or which do not touch each other somewhere. To take similarity first: however profound are the differences which separate two images, we shall always find, if we go back high enough, a common genus to which they belong, and, consequently, a resemblance which may serve as a connecting link between them. And, in regard to contiguity, a perception A, as we said before, will not evoke "by contiguity" a former image B, unless it recalls to us first an image A', which is like it, because it is the recollection A', and not the perception A, which really touches B in memory. However distant, then, we suppose the terms A and B from each other, a relation of contiguity can always be found between them, provided that the intercalated term A' bears a sufficiently farfetched resemblance to A. This is as much as to

say that between any two ideas chosen at random there is always a resemblance, and always, even, contiguity, so that, when we discover a relation of contiguity or of resemblance between two successive ideas, we have in no way explained why the one evokes the other.

What we really need to discover is how a choice is effected among an infinite number of recollections which all resemble in some way the present perception, and why only one of them — this rather than that — emerges into the light of consciousness. But this is just what associationism cannot tell us, because it has made ideas and images into independent entities floating, like the atoms of Epicurus, in an inward space, drawing near to each other when chance brings them within the sphere of mutual attraction. And if we try to get to the bottom of the doctrine on this point, we find that its error is that it overly *intellectualizes* ideas: it attributes to them a purely speculative role, believes that they exist for themselves and not for us, and overlooks the relation which they bear to the activity of the will. If memories move about indifferently in a consciousness that is both lifeless and shapeless, there is no reason why the present perception should prefer and attract any one of them: we can only, in that case, note the conjunction, when once it has taken place, and speak of similarity or of contiguity — which is merely, at bottom, to express in vague terms that our mental states have affinities for one another.

But even of this affinity, which takes the double form of contiguity and of similarity, associationism can furnish no explanation. The general tendency to associate remains as obscure for us, if we adhere to this doctrine, as the particular forms of association. Having stiffened individual memory-images into ready-made things, given cut-and-dry in the course of our mental life, associationism is reduced to bringing in, between these objects, mysterious attractions, of which it is not even possible to say beforehand, as of physi-

cal attraction, by what effects they will manifest themselves. For why should an image which is, by hypothesis, self-sufficient, seek to accrue to itself others either similar or given in contiguity with it? The truth is that this independent image is a late and artificial product of the mind. In fact, we perceive the resemblance before we perceive the individuals which resemble each other; and, in an aggregate of contiguous parts, we perceive the whole before the parts. We go on from similarity to similar objects, embroidering upon the similarity, as on their common stuff, or canvas, the variety of individual differences. And we go on also from the whole to the parts, by a process of decomposition the law of which will appear later, a process which consists in breaking up, for the greater convenience of practical life, the continuity of the real. *Association*, then, is not the primary fact: *dissociation* is what we begin with, and the tendency of every memory to gather to itself others must be explained by the natural return of the mind to the undivided unity of perception.

But here we discover the radical vice of associationism. Given a present perception which forms by turns, with different recollections, several associations one after another, there are two ways, as we said, of conceiving the mechanism of this association. We may suppose that the perception remains identical with itself, a true psychical atom which gathers to itself others just as these happen to be passing by. This is the point of view of associationism. But there is also another — precisely the one which we have indicated in our theory of recognition. We have supposed that our entire personality, with the totality of our recollections, is present, undivided within our actual perception. Then, if this perception evokes in turn different memories, it is not by a mechanical adjunction of more and more numerous elements which, while remaining unmoved, it attracts around it, but rather by an expansion of the entire consciousness which, spreading out over a larger

area, discovers the fuller detail of its wealth. So a nebulous mass, seen through more and more powerful telescopes, resolves itself into an ever greater number of stars. In the first hypothesis (in favor of which there is little but its apparent simplicity and its analogy with a misunderstood physical atomism), each recollection is a fixed and independent being, of which we can neither say why it seeks to accrue to itself others, nor how it chooses, among a thousand memories which should have equal rights, those with which to associate itself in virtue of similarity or contiguity. We must suppose that ideas jostle each other at random, or that they exert among themselves mysterious forces, and, moreover, we have against us the witness of consciousness, which never shows us psychical facts floating as independent entities. From the second point of view, we merely state a fact, viz., that psychic facts are bound up with each other, and are always given together to immediate consciousness as an undivided whole which reflection alone cuts up into distinct fragments. What we have to explain, then, is no longer the cohesion of internal states, but the double movement of contraction and expansion by which consciousness narrows or enlarges the development of its content. But this movement, we shall see, is the result of the fundamental needs of life; and we shall also see why the "associations," which we appear to form in the course of this movement, correspond to all the possible degrees of so-called contiguity and resemblance.

Let us, for a moment, suppose our psychical life reduced to sensori-motor functions alone. In other words, suppose ourselves placed in Figure 5 on page 162 at point S, which corresponds to the greatest possible simplification of our mental life. In this state every perception spontaneously prolongs itself into appropriate reactions, for analogous former perceptions have set up more or less complex motor apparatus, which only await a recurrence of the same appeal in order to enter into play. Now there is, in this

mechanism, an *association of simplicity*, since the present perception acts in virtue of its likeness to past perceptions; there is also an *association of contiguity*, since the movements which followed those former perceptions reproduce themselves and may even bring in their train a vast number of actions coordinate with the first. Here then we seize association of similarity and association of contiguity at their very source, and at a point where they are almost confounded in one — not indeed thought, but acted and lived. They are not contingent forms of our psychical life; they represent the two complementary aspects of one and the same fundamental tendency, the tendency of every organism to extract from a given situation that in it which is useful, and to store up the eventual reaction in the form of a motor habit, that it may serve other situations of the same kind.

Let us jump now to the other extremity of our mental life, and, following our line of thought, go from the psychical existence which is merely "acted," to that which is exclusively "dreamed." In other words, let us place ourselves on the base AB of memory in Figure 5 on page 162, where all the events of our past life are set out in their smallest details. A consciousness which, detached from action, should thus keep in view the totality of its past, would have no reason to dwell upon one part of this past rather than upon another. In one sense, all its recollections would differ from its present perception, for, if we take them in the multiplicity of their detail, no two memories are ever precisely the same thing. But, in another sense, *any* memory may be set alongside the present situation: it would be sufficient to neglect in this perception and in this memory just enough detail for similarity alone to appear. Moreover, the moment that the recollection is linked with the perception, a multitude of events contiguous to the memory are thereby fastened to the perception — an indefinite multitude, which is only limited at the point at which we

choose to stop it. The necessities of life are no longer there to regulate the effect of similarity, and, consequently, of contiguity; as, after all, everything resembles everything else, it follows that anything can be associated with anything. In the first case, the present perception continued itself in determinate movements; now it melts into an infinity of memories, all equally possible. At AB, association would provoke an arbitrary choice, and, in S, an inevitable deed.

But these are only two extreme limits, at which the psychologist must place himself alternately for convenience of study, and which are really never reached in practice. There is not, in man at least, a purely sensori-motor state, any more than there is in him an imaginative life without some slight activity beneath it. Our psychological life, as we have said, oscillates normally between these two extremes. On the one hand, the sensori-motor state S delineates the present direction of memory, being nothing else, in fact, than its actual and acting extremity; and, on the other hand, this memory itself, with the totality of our past, is continually pressing forward, so as to insert the largest possible part of itself into the present action. From this double effort result, at every moment, an infinite number of possible *states* of memory, states figured by the sections A'B', A''B'' of our diagram. These are, as we have said, so many repetitions of the whole of our past life. But each section is larger or smaller according to its nearness to the base or to the summit; moreover, each of these complete representations of the past brings to the light of consciousness only that which can fit into the sensori-motor state and, consequently, that which resembles the present perception from the point of view of the action to be accomplished. In other words, memory, laden with the whole of the past, responds to the appeal of the present state by two simultaneous movements, one of translation, by which it moves in its entirety to meet experience, thus contracting more or less,

though without dividing, with a view to action; and the other of rotation upon itself, by which it turns toward the situation of the moment, presenting to it that side of itself which may prove to be the most useful. To these varying degrees of contraction correspond the various forms of association by similarity.

Everything happens, then, as though our recollections were repeated an infinite number of times in these many possible reductions of our past life. They take a more common form when memory shrinks most, more personal when it widens out, and they thus enter into an unlimited number of different "systematizations." A word from a foreign language, uttered in my hearing, may make me think of that language in general or of a voice which once pronounced it in a certain way. These two associations by similarity are not due to the accidental arrival of two different representations, which chance brought by turns within the attracting influence of the actual perception. They answer to two different mental *dispositions*, to two distinct degrees of tension of the memory; in the latter case they are nearer to the pure image, in the former, they are more disposed toward immediate response, that is to say, to action. To classify these systems, to discover the law which binds them respectively to the different "tones" of our mental life, to show how each of these tones is itself determined by the needs of the moment and also by the varying degree of our personal effort, would be a difficult task: the whole of this psychology is yet unmapped, and for the moment we do not even wish to attempt it. But every one is clearly aware of the existence of these laws, and of stable relations of this kind. We know, for instance, when we read a psychological novel, that certain associations of ideas there depicted for us are true, that they may have been lived; others offend us, or fail to give us an impression of reality, because we feel in them the effect of a connection, mechanically and artificially brought about, between different mental levels, as though

the author had not taken care to maintain himself on that plane of the mental life which he had chosen. Memory has then its successive and distinct degrees of tension or of vitality: they are certainly not easy to define, but the painter of mental scenery may not with impunity confound them. Pathology, moreover, here confirms — by means, it is true, of coarser examples — a truth of which we are all instinctively aware. In the “systematized amnesias” of hysterical patients, for example, the recollections which appear to be abolished are really present, but they are probably all bound up with a certain determined tone of intellectual vitality in which the subject can no longer place himself.

Just as there are these *different planes*, infinite in number, for association by similarity, so there are with association by contiguity. In the extreme plane, which represents the base of memory, there is no recollection which is not linked by contiguity with the totality of the events which precede and also with those which follow it. Yet at the point in space where our action is concentrated, contiguity brings back, in the form of movement, only the reaction which immediately followed a former similar perception. As a matter of fact, every association by contiguity implies a position of the mind intermediate between the two extreme limits. If, here again, we imagine a number of possible repetitions of the totality of our memories, each of these copies of our past life must be supposed to be cut up, in its own way, into definite parts, and the cutting up is not the same when we pass from one copy to another, each of them being in fact characterized by the particular kind of dominant memories on which the other memories lean as on supporting points. The nearer we come to action, for instance, the more contiguity tends to approximate to similarity and to be thus distinguished from a mere relation of chronological succession: thus we cannot say of the words of a foreign language, when they call each other up in memory, whether they are associated by

similarity or by contiguity. On the contrary, the more we detach ourselves from action, real or possible, the more association by contiguity tends merely to reproduce the consecutive images of our past life. It is impossible to enter here into a profound study of these different systems. But it is sufficient to point out that these systems are not formed of recollections laid side by side like so many atoms. There are always some dominant memories, shining points round which the others form a vague nebulosity. These shining points are multiplied in the degree to which our memory expands. The process of localizing a recollection in the past, for instance, cannot at all consist, as has been said, in plunging into the mass of our memories, as into a bag, to draw out memories, closer and closer to each other, between which the memory to be localized may find its place. By what happy chance could we just hit upon on a growing number of intercalary recollections? The work of localization consists, in reality, in a growing effort of *expansion*, by which the memory, always present in its entirety to itself, spreads out its recollections over an ever wider surface and so ends by distinguishing, in what was till then a confused mass, the remembrance which could not find its proper place. Here again, moreover, the pathology of memory is instructive. In retrogressive amnesia, the recollections which disappear from consciousness are probably preserved in remote planes of memory, and the patient can find them there by an exceptional effort like that which is effected in the hypnotic state. But, on the lower planes, these memories await, so to speak, the dominant image to which they may be fastened. A sharp shock, a violent emotion, forms the decisive event to which they cling; if this event, by reason of its sudden character, is cut off from the rest of our history, they follow it into oblivion. We can understand, then, that the oblivion which follows a physical or moral shock should include the events which immediately preceded it — a phenomenon which is very difficult

to explain in all other conceptions of memory. Let us remark in passing that if we refuse to attribute some such waiting to recent, and even to relatively distant, recollections, the normal work of memory becomes unintelligible. For every event of which the recollection is now imprinted on the memory, however simple we suppose it to be, has occupied a certain time. The perceptions, which filled the first period of this interval, and now form with the later perceptions an undivided memory, were then really "loose" as long as the decisive part of the event had not occurred and drawn them along. Between the disappearance of a memory with its various preliminary details, and the abolition, in retrogressive amnesia, of a greater or less number of recollections previous to a given event, there is, then, merely a difference of degree, not of kind.

From these various considerations on the lower mental life results a certain view of intellectual equilibrium. This equilibrium will be upset only by a perturbation of the elements which serve as its matter. We cannot here go into questions of mental pathology; yet neither can we avoid them entirely, since we are endeavoring to discover the exact relation between body and mind.

We have supposed that the mind travels unceasingly over the interval comprised between its two extreme limits, the plane of action and the plane of dream. Let us suppose that we have to make a decision. Collecting, organizing the totality of its experience in what we call its character, the mind causes it to converge upon actions in which we shall afterwards find, together with the past which is their matter, the unforeseen form which is stamped upon them by personality; but the action is not able to become real unless it succeeds in encasing itself in the actual situation, that is to say, in that particular assemblage of circumstances which is due to the particular position of the body in time and space. Let

us suppose that we have to do a piece of intellectual work, to form a conception, to extract a more or less general idea from the multiplicity of our recollections. A wide margin is left to fancy, on the one hand, to logical discernment on the other hand; but, if the idea is to live, it must touch present reality on some side; that is to say, it must be able, from step to step, and by progressive diminutions or contractions of itself, to be more or less acted by the body at the same time as it is thought by the mind. Our body, with the sensations which it receives on the one hand and the movements which it is capable of executing on the other hand, is then, that which fixes our mind, and gives it ballast and poise. The activity of the mind goes far beyond the mass of accumulated memories, as this mass of memories itself is infinitely more than the sensations and movements of the present hour; but these sensations and these movements condition what we may term our *attention to life*, and that is why everything depends on their cohesion in the normal work of the mind, as in a pyramid which should stand upon its apex.

If, moreover, we cast a glance at the minute structure of the nervous system as recent discoveries have revealed it to us, we see everywhere conducting lines, nowhere any centers. Threads placed end to end, of which the extremities probably touch when the current passes: this is all that is seen. And perhaps this is all there is, if it is true that the body is only a place of meeting and transfer, where stimulations received result in movements accomplished, as we have supposed it to be throughout this work. But these threads, which receive disturbances or stimulations from the external world and return them to it in the form of appropriate reactions, these threads so beautifully stretched from the periphery to the periphery, are just what ensure by the solidity of these connections and the precision of their interweaving the sensori-motor equilibrium of the body, that is to say, its adaptation to the pre-

sent circumstances. Relax this tension or destroy this equilibrium: everything happens as if attention detached itself from life. Dreams and insanity appear to be little else than this.

We were speaking just now of the recent hypothesis which attributes sleep to an interruption of the solidarity among the neurons. Even if we do not accept this hypothesis (which is, however, confirmed by some curious experiments), we must suppose, in deep sleep, at least a functional break in the relation established in the nervous system between stimulation and motor reaction. So dreams would always be the state of a mind of which the attention was not fixed by the sensori-motor equilibrium of the body. And it appears more and more probable that this relaxing of tension in the nervous system is due to the poisoning of its elements by products of their normal activity accumulated in the waking state. Now, in every way, dreams imitate insanity. Not only are all the psychological symptoms of madness found in dreams – to such a degree that the comparison of the two states has become a commonplace – but insanity appears also to have its origin in an exhaustion of the brain, which is caused, like normal fatigue, by the accumulation of certain specific poisons in the elements of the nervous system.⁴ We know that insanity is often a sequel to infectious diseases, and that, moreover, it is possible to reproduce experimentally, by toxic drugs, all the phenomena of madness.⁵ Is it not likely, therefore, that the loss of mental equilibrium in the insane is simply the result of a disturbance of the sensori-motor relations established in the organism? This disturbance may be enough to create a sort of psychic vertigo and so cause memory and attention to lose contact with reality. If we read the descriptions given by some mad patients of the beginning of their malady, we find that they often feel a sensation of strangeness, or, as they say, of “unreality,” as if the things they perceived had for them lost solidity and relief.⁶ If our analyses are correct, the concrete feeling

that we have of present reality consists, in fact, of our consciousness of the actual movements whereby our organism is naturally responding to stimulation; so that where the connecting links between sensations and movements are slackened or tangled, the sense of the real grows weaker, or disappears.⁷

There are here, moreover, many distinctions to be made, not only between the various forms of insanity, but also between properly so-called insanity and that division of the personality which recent psychology has so ingeniously compared with it.⁸ In these diseases of personality, it seems that groups of recollections detach themselves from the central memory and forego their solidarity with the others. But, then, it seldom occurs that the patient does not also display accompanying scissions of sensibility and of motor activity.⁹ We cannot help seeing in these latter phenomena the real material substratum of the former. If it be true that our intellectual life rests, as a whole, upon its apex, that is to say, upon the sensori-motor functions by which it inserts itself into present reality, intellectual equilibrium will be differently affected as these functions are damaged in one manner or in another. Now, besides the lesions which affect the general vitality of the sensori-motor functions, weakening or destroying what we have called the sense of reality, there are others which reveal themselves in a mechanical, not a dynamical, diminution of these functions, as if certain sensori-motor connections merely parted company with the rest. If we are right in our hypothesis, memory is very differently affected in the two cases. In the first, no recollection is taken away, but all recollections are less ballasted, less solidly directed toward the real; from this a true disturbance of the mental equilibrium arises. In the second, the equilibrium is not destroyed, but it loses something of its complexity. Recollections retain their normal aspect, but forego a part of their solidarity, because their sensori-motor base, instead of being, so to speak, chemically changed, is mechani-

cally diminished. But neither in the one case nor in the other are memories directly attacked or damaged.

The idea that the body preserves memories in the mechanical form of cerebral deposits, that the loss or decrease of memory consists in their more or less complete destruction, whereas the heightening of memory and hallucination consists in an excess of their activity, is not, then, borne out either by reasoning or by facts. The truth is that there is one case, and one only, in which observation would seem at first to suggest this view: we mean aphasia, or, more generally, the disturbance of auditory or visual recognition. This is the only case in which the constant seat of the disorder is in a determined convolution of the brain; yet it is also precisely the case in which we do not find a mechanical, immediate and final destruction of certain definite recollections, but rather the gradual and functional weakening of the whole of the affected memory. And we have explained how the cerebral lesion may effect this weakening, without the necessity of supposing any sort of provision of memories stored in the brain. What the injury really attacks are the sensory and motor regions corresponding to this class of perception, and especially those adjuncts through which they may be set in motion from within, so that memory, finding nothing to catch hold of, ends by becoming practically powerless: now, in psychology, powerlessness means unconsciousness. In all other cases, the lesion observed or supposed, never definitely localized, acts by the disturbance which it causes to the whole of the sensori-motor connections, either by damaging or by breaking up this mass: whence results a breach or a simplifying of the intellectual equilibrium, and, by *ricochet*, the disorder or the disjunction of memory. The doctrine which makes of memory an immediate function of the brain – a doctrine which raises insoluble theoretical difficulties – a doctrine the complexity of which defies all imagination, and the results of which are incompatible

with the data of introspection – cannot even count upon the support of cerebral pathology. All the facts and all the analogies are in favor of a theory which regards the brain as only an intermediary between sensation and movement, which sees in this aggregate of sensations and movements the pointed end of mental life – a point ever pressed forward into the tissue of events, and, attributing thus to the body the sole function of directing memory toward the real and of binding it to the present, considers memory itself as absolutely independent of matter. In this sense, the brain contributes to the recall of the useful recollection, but still more to the provisional banishment of all the others. We cannot see how memory could settle within matter; but we do clearly understand how – according to the profound saying of a contemporary philosopher – materiality begets oblivion.¹⁰

CHAPTER IV

The Delimiting and Fixing of Images.

Perception and Matter.

Soul and Body.

One general conclusion follows from the first three chapters of this book: it is that the body, always turned toward action, has for its essential function to limit, with a view to action, the life of the spirit. In regard to representations it is an instrument of choice, and of choice alone. It can neither beget nor cause an intellectual state. Consider perception, to begin with. The body, by the place which at each moment it occupies in the universe, indicates the parts and the aspects of matter on which we can lay hold: our perception, which exactly measures our virtual action on things, thus limits itself to the objects which actually influence our organs and prepare our movements. Now let us turn to memory. The function of the body is not to store up recollections, but simply to choose, in order to bring back to distinct consciousness, by the real efficacy thus conferred on it, the useful memory, that which may complete and illuminate the present situation with a view to ultimate action. It is true that this second choice is much less strictly determined than the first, because our past experience is an individual and no longer a common experience, because we have always many different recollections equally capable of squaring with the same actual situation, and because nature cannot here,

as in the case of perception, have one inflexible rule for delimiting our representations. A certain margin is, therefore, necessarily left in this case to fancy; though animals scarcely profit by it, bound as they are to material needs, it would seem that the human mind ceaselessly presses with the totality of its memory against the door which the body may half open to it: hence the play of fancy and the work of imagination – so many liberties which the mind takes with nature. It is nonetheless true that the orientation of our consciousness toward action appears to be the fundamental law of our psychical life.

Strictly speaking, we might stop here, for this work was undertaken to define the function of the body in the life of the spirit. But, on the one hand, we have raised by the way a metaphysical problem which we cannot bring ourselves to leave in suspense; on the other hand, our researches, although mainly psychological, have on several occasions given us glimpses, if not of the means of solving the problem, at any rate of the side on which it should be approached.

This problem is no less than that of the union of soul and body. It comes before us clearly and with urgency because we make a profound distinction between matter and spirit. And we cannot regard it as insoluble, since we define spirit and matter by positive characters, and not by negations. It is in very truth within matter that pure perception places us, and it is really into spirit that we penetrate by means of memory. But, on the other hand, while introspection reveals to us the distinction between matter and spirit, it also bears witness to their union. Either, then, our analyses are vitiated *ab origine*, or they must help us to issue from the difficulties that they raise.

The obscurity of this problem, in all doctrines, is due to the double antithesis which our understanding establishes between the extended and the unextended on the one side and between

quality and quantity on the other side. It is certain that mind, first of all, stands over against matter as a pure unity in face of an essentially divisible multiplicity; moreover, our perceptions are composed of heterogeneous qualities, whereas the perceived universe seems to resolve itself into homogeneous and calculable changes. There would thus be inextension and quality, on the one hand, extensity and quantity, on the other hand. We have repudiated materialism, which derives the first term from the second; but neither do we accept idealism, which holds that the second is constructed by the first. We maintain, as against materialism, that perception overflows infinitely the cerebral state; but we have endeavored to establish, as against idealism, that matter goes in every direction beyond our representation of it, a representation which the mind has gathered out of it, so to speak, by an intelligent choice. Of these two opposite doctrines, the one attributes to the body and the other to the intellect a true power of creation, the first insisting that our brain begets representation and the second that our understanding designs the plan of nature. And against these two doctrines we invoke the same testimony, that of consciousness, which shows us our body as one image among others and our understanding as a certain faculty of dissociating, of distinguishing, of opposing logically, but not of creating or of constructing. Thus, willing captives of psychological analysis and, consequently, of common sense, it would seem that, after having exacerbated the conflicts raised by ordinary dualism, we have closed all the avenues of escape which metaphysic might set open to us.

But, just because we have pushed dualism to an extreme, our analysis has perhaps dissociated its contradictory elements. The theory of pure perception, on the one hand, of pure memory, on the other hand, may thus prepare the way for a reconciliation between the unextended and the extended, between quality and quantity.

To take pure perception first. When we make the cerebral state

the beginning of an action, and in no sense the condition of a perception, we place the perceived images of things outside the image of our body, and thus replace perception within the things themselves. But then, our perception being a part of things, things participate in the nature of our perception. Material extensity is not, cannot any longer be, that composite extensity which is considered in geometry; it indeed resembles rather the undivided extension of our own representation. That is to say, the analysis of pure perception allows us to foreshadow in the idea of *extension* the possible approach to each other of the extended and the unextended.

But our conception of pure memory should lead us, by a parallel road, to attenuate the second opposition, that of quality and quantity. For we have radically separated pure recollection from the cerebral state which continues it and renders it efficacious. Memory is, then, in no degree an emanation of matter; on the contrary, matter, as grasped in concrete perception which always occupies a certain duration, is in great part the work of memory. Now where is, precisely, the difference between the heterogeneous qualities which succeed each other in our concrete perception and the homogeneous changes which science puts at the back of these perceptions in space? The first are discontinuous and cannot be deduced one from another; the second, on the contrary, lend themselves to calculation. But, in order that they may lend themselves to calculation, there is no need to make them into pure quantities: we might as well say that they are nothing at all. It is enough that their heterogeneity should be, so to speak, sufficiently diluted to become, from our point of view, practically negligible. Now, if every concrete perception, however short we suppose it, is already a synthesis, made by memory, of an infinity of "pure perceptions" which succeed each other, must we not think that the heterogeneity of sensible qualities is due to their being contracted in our memory and the relative homogeneity of

objective changes to the slackness of their natural tension? And might not the interval between quantity and quality be lessened by considerations of *tension*, as the distance between the extended and the unextended is lessened by considerations of extension?

Before entering on this question, let us formulate the general principle of the method we would apply. We have already made use of it in an earlier work and even, by implication, in the present essay.

That which is commonly called a *fact* is not reality as it appears to immediate intuition, but an adaptation of the real to the interests of practice and to the exigencies of social life. Pure intuition, external or internal, is that of an undivided continuity. We break up this continuity into elements laid side by side, which correspond in the one case to distinct *words*, in the other to independent *objects*. But, just because we have thus broken the unity of our original intuition, we feel ourselves obliged to establish between the severed terms a bond which can only then be external and superadded. For the living unity, which was one with internal continuity, we substitute the factitious unity of an empty diagram as lifeless as the parts which it holds together. Empiricism and dogmatism are, at bottom, agreed in starting from phenomena so reconstructed; they differ only in that dogmatism attaches itself more particularly to the form and empiricism to the matter. Empiricism, feeling indeed, but feeling vaguely, the artificial character of the relations which unite the terms together, holds to the terms and neglects the relations. Its error is not that it sets too high a value on experience, but that it substitutes for true experience, that experience which arises from the immediate contact of the mind with its object, an experience which is disarticulated and, therefore, most probably, disfigured — at any rate arranged for the greater facility of action and of language. Just because this parceling of the real has been effected in view of the exigencies of prac-

tical life, it has not followed the internal lines of the structure of things: for that very reason empiricism cannot satisfy the mind in regard to any of the great problems and, indeed, whenever it becomes fully conscious of its own principle, it refrains from putting them. Dogmatism discovers and disengages the difficulties to which empiricism is blind; however, it really seeks the solution along the very road that empiricism has marked out. It accepts, at the hands of empiricism, phenomena that are separate and discontinuous and simply endeavors to effect a synthesis of them which, not having been given by intuition, cannot but be arbitrary. In other words, if metaphysic is only a construction, there are several systems of metaphysic equally plausible, which consequently refute each other, and the last word must remain with a *critical* philosophy, which holds all knowledge to be relative and the ultimate nature of things to be inaccessible to the mind. Such is, in truth, the ordinary course of philosophic thought: we start from what we take to be experience, we attempt various possible arrangements of the fragments which apparently compose it, and when at last we feel bound to acknowledge the fragility of every edifice that we have built, we end by giving up all effort to build. But there is a last enterprise that might be undertaken. It would be to seek experience at its source, or rather above that decisive *turn* where, taking a bias in the direction of our utility, it becomes properly *human* experience. The impotence of speculative reason, as Kant has demonstrated it, is perhaps at bottom only the impotence of an intellect enslaved to certain necessities of bodily life and concerned with a matter which man has had to disorganize for the satisfaction of his wants. Our knowledge of things would thus no longer be relative to the fundamental structure of our mind, but only to its superficial and acquired habits, to the contingent form which it derives from our bodily functions and from our lower needs. The relativity of knowledge may not, then, be definitive. By

unmaking that which these needs have made, we may restore to intuition its original purity and so recover contact with the real.

This method presents, in its application, difficulties which are considerable and ever recurrent, because it demands for the solution of each new problem an entirely new effort. To give up certain habits of thinking, and even of perceiving, is far from easy; yet this is but the negative part of the work to be done; and when it is done, when we have placed ourselves at what we have called the *turn* of experience, when we have profited by the faint light which, illuminating the passage from the *immediate* to the *useful*, marks the dawn of our human experience, there still remains to be reconstituted, with the infinitely small elements which we thus perceive of the real curve, the curve itself stretching out into the darkness behind them. In this sense the task of the philosopher, as we understand it, closely resembles that of the mathematician who determines a function by starting from the differential. The final effort of philosophical research is a true work of integration.

We have already attempted to apply this method to the problem of consciousness;¹ and it appeared to us that the utilitarian work of the mind, in what concerns the perception of our inner life, consisted in a sort of refracting of pure duration into space, a refracting which permits us to separate our psychical states, to reduce them to a more and more impersonal form, and to impose names upon them — in short, to make them enter the current of social life. Empiricism and dogmatism assume interior states in this discontinuous form; the first confining itself to the states themselves, so that it can see in the self only a succession of juxtaposed facts; the other grasping the necessity of a bond, but unable to find this bond anywhere except in a form or in a force — an exterior form into which the aggregate is inserted, an indetermined and so to speak physical force which assures the cohesion of the elements. Hence the two opposing points of view as to the question of free-

dom: for determinism, the act is the resultant of a mechanical composition of the elements; for the adversaries of that doctrine, if they adhered strictly to their principle, the free decision would be an arbitrary *fiat*, a true creation *ex nihilo*. It seemed to us that a third course lay open. This is to replace ourselves in pure duration, of which the flow is continuous and in which we pass insensibly from one state to another: a continuity which is really lived, but artificially decomposed for the greater convenience of customary knowledge. Then, it seemed to us, we saw the action issue from its antecedents by an evolution *sui generis*, in such a way that we find in this action the antecedents which explain it, while it also adds to these something entirely new, being an advance upon them such as the fruit is upon the flower. Freedom is not hereby, as has been asserted, reduced to sensible spontaneity. At most, this would be the case in the animal, of which the psychical life is mainly affective. But, in man, the thinking being, the free act may be termed a synthesis of feelings and ideas and the evolution which leads to it a reasonable evolution. The artifice of this method simply consists, in short, in distinguishing the point of view of customary or useful knowledge from that of true knowledge. The duration *wherein we see ourselves acting*, and in which it is useful that we should see ourselves, is a duration whose elements are dissociated and juxtaposed. The duration *wherein we act* is a duration wherein our states melt into each other. It is within this that we should try to replace ourselves by thought, in the exceptional and unique case when we speculate on the intimate nature of action, that is to say, when we are discussing human freedom.

Is a method of this kind applicable to the problem of matter? The question is, whether, in this "diversity of phenomena" of which Kant spoke, that part which shows a vague tendency toward extension could be seized by us on the nearer side of the homogeneous space to which it is applied and through which we subdivide it —

just as that part which goes to make up our own inner life can be detached from time, empty and indefinite, and brought back to pure duration. Certainly, it would be a chimerical enterprise to try to free ourselves from the fundamental conditions of external perception. But the question is whether certain conditions, which we usually regard as fundamental, do not rather concern the use to be made of things, the practical advantage to be drawn from them, far more than the pure knowledge which we can have of them. More particularly, in regard to concrete extension, continuous, diversified and at the same time organized, we do not see why it should be bound up with the amorphous and inert space which subtends it — a space which we divide indefinitely, out of which we carve figures arbitrarily, and in which movement itself, as we have said elsewhere, can only appear as a multiplicity of instantaneous positions, since nothing there can ensure the coherence of past with present. It might, then, be possible, in a certain measure, to transcend space without stepping out from extensity; and here we should really have a return to the immediate, since we do indeed perceive extensity, whereas space is merely conceived — being a kind of mental diagram. It may be urged against this method that it arbitrarily attributes a privileged value to immediate knowledge? But what reasons should we have for doubting any knowledge — would the idea of doubting it ever occur to us — but for the difficulties and the contradictions which reflection discovers, but for the problems which philosophy poses? And would not immediate knowledge find in itself its justification and proof if we could show that these difficulties, contradictions and problems are mainly the result of the symbolic diagrams which cover it up, diagrams which have for us become reality itself, and beyond which only an intense and unusual effort can succeed in penetrating?

Let us choose immediately, among the results to which the application of this method may lead, those which concern our

present enquiry. We must confine ourselves to mere suggestions; there can be no question here of constructing a theory of matter.

I. *Every movement, inasmuch as it is a passage from rest to rest, is absolutely indivisible.*

This is not an hypothesis, but a fact, generally masked by an hypothesis.

Here, for example, is my hand, placed at the point A. I carry it to the point B, passing at one stroke through the interval between them. There are two things in this movement: an image, which I see, and an act, of which my muscular sense makes my consciousness aware. My consciousness gives me the inward feeling of a single fact, for in A was rest, in B there is again rest, and between A and B is placed an indivisible or at least an undivided act, the passage from rest to rest, which is movement itself. But my sight perceives the movement in the form of a line AB, which is traversed, and this line, like all space, may be indefinitely divided. It seems then, at first sight, that I may at will take this movement to be multiple or indivisible, according as I consider it in space or in time, as an image which takes shape outside of me or as an act which I am myself accomplishing.

Yet, when I put aside all preconceived ideas, I soon perceive that I have no such choice, that even my sight takes in the movement from A to B as an indivisible whole, and that if it divides anything, it is the line supposed to have been traversed, and not the movement traversing it. It is indeed true that my hand does not go from A to B without passing through the intermediate positions, and that these intermediate points resemble stages, as numerous as you please, along the route; but there is, between the divisions so marked out and stages properly so-called, this capital difference, that at a stage we *halt*, whereas at these points the moving

body *passes*. Now a passage is movement and a halt is an immobility. The halt interrupts the movement; the passage is one with the movement itself. When I see the moving body pass any point, I conceive, no doubt, that it *might* stop there; even when it does not stop there, I incline to consider its passage as an arrest, though infinitely short, because I must have at least the time to think of it; yet it is only my imagination which stops there, and what the moving body has to do is, on the contrary, to move. As every point of space necessarily appears to me fixed, I find it extremely difficult not to attribute to the moving body itself the immobility of the point with which, for a moment, I make it coincide; it seems to me, then, when I reconstitute the total movement, that the moving body has stayed an infinitely short time at every point of its trajectory. But we must not confound the data of the senses, which perceive the movement, with the artifice of the mind, which recomposes it. The senses, left to themselves, present to us the real movement, between two real halts, as a solid and undivided whole. The division is the work of our imagination, of which indeed the office is to fix the moving images of our ordinary experience, like the instantaneous flash which illuminates a stormy landscape by night.

We discover here, at its outset, the illusion which accompanies and masks the perception of real movement. Movement visibly consists in passing from one point to another and consequently, in traversing space. Now the space which is traversed is infinitely divisible; and as the movement is, so to speak, applied to the line along which it passes, it appears to be one with this line and, like it, divisible. Has not the movement itself drawn the line? Has it not traversed in turn the successive and juxtaposed points of that line? Yes, no doubt, but these points have no reality except in a line drawn, that is to say, motionless. And by the very fact that you represent the movement to yourself successively in

these different points, you necessarily arrest it in each of them; your successive positions are, at bottom, only so many imaginary halts. You substitute the path for the journey, and because the journey is subtended by the path, you think that the two coincide. But how should a *progress* coincide with a *thing*, a movement with an immobility?

What facilitates this illusion is that we distinguish moments in the course of duration, like halts in the passage of the moving body. Even if we grant that the movement from one point to another forms an undivided whole, this movement, nevertheless, takes a certain time, so if we carve out of this duration an indivisible instant, it seems that the moving body must occupy, at that precise moment, a certain position, which thus stands out from the whole. The indivisibility of motion implies, then, the impossibility of real instants; indeed, a very brief analysis of the idea of duration will show us both why we attribute instants to duration and why it cannot have any. Suppose a simple movement, like that of my hand when it goes from A to B. This passage is given to my consciousness as an undivided whole. No doubt it endures; but this duration, which in fact coincides with the aspect which the movement has inwardly for my consciousness, is, like it, whole and undivided. Now while it presents itself, qua movement, as a simple movement, as a simple fact, it describes in space a trajectory which I may consider, for purposes of simplification, as a geometrical line, and the extremities of this line, considered as abstract limits, are no longer lines, but indivisible points. Now, if the line, which the moving body has described, measures for me the duration of its movement, must not the point, where the line ends, symbolize for me a terminus of this duration? And if this point is an indivisible of length, how shall we avoid terminating the duration of the movement by an indivisible of duration? If the total line represents the total duration, the parts of the line must; it

seems, correspond to parts of the duration and the points of the line to moments in time. The indivisibles of duration, or moments of time, are born, then, of the need of symmetry; we come to them naturally as soon as we demand from space an integral presentment of duration. But herein, precisely, lies the error. While the line AB symbolizes the duration already lapsed of the movement from A to B already accomplished, it cannot, motionless, represent the movement in its accomplishment nor duration in its flow. And from the fact that this line is divisible into parts and that it ends in points, we cannot conclude either that the corresponding duration is composed of separate parts or that it is limited by instants.

The arguments of Zeno of Elea have no other origin than this illusion. They all consist in making time and movement coincide with the line which underlies them, in attributing to them the same subdivisions as to the line, in short, in treating them like that line. In this confusion Zeno was encouraged by common sense, which usually carries over to the movement the properties of its trajectory, and also by language, which always translates movement and duration in terms of space. But common sense and language have a right to do so and are even bound to do so, for, since they always regard the *becoming* as a *thing* to be made use of, they have no more concern with the interior organization of movement than a workman has with the molecular structure of his tools. In holding movement to be divisible, as its trajectory is, common sense merely expresses the two facts which alone are of importance in practical life: first, that every movement describes a space; second, that at every point of this space the moving body *might* stop. But the philosopher who reasons upon the inner nature of movement is bound to restore to it the mobility which is its essence, and this is what Zeno omits to do. By the first argument (the Dichotomy) he supposes the moving body to be at rest and then

considers nothing but the stages, infinite in number, that are along the line to be traversed: we cannot imagine, he says, how the body could ever get through the interval between them. But, in this way, he merely proves that it is impossible to construct, a priori, movement with immobilities, a thing no man ever doubted. The sole question is whether, movement being posited as a fact, there is a sort of retrospective absurdity in assuming that an infinite number of points has been passed through. But at this we need not wonder, since movement is an undivided fact, or a series of undivided facts, whereas the trajectory is infinitely divisible. In the second argument (the Achilles) movement is indeed given; it is even attributed to two moving bodies, but, always by the same error, there is an assumption that their movement coincides with their path and that we may divide it, like the path itself, in any way we please. Then, instead of recognizing that the tortoise has the pace of a tortoise and Achilles the pace of Achilles, so that after a certain number of these indivisible acts or bounds Achilles will have outrun the tortoise, the contention is that we may disarticulate as we will the movement of Achilles and, as we will also, the movement of the tortoise: thus reconstructing both in an arbitrary way, according to a law of our own which may be incompatible with the real conditions of mobility. The same fallacy appears, yet more evident, in the third argument (the Arrow), which consists in the conclusion that, because it is possible to distinguish points on the path of a moving body, we have the right to distinguish indivisible moments in the duration of its movement. But the most instructive of Zeno's arguments is perhaps the fourth (the Stadium) which has, we believe, been unjustly disdained, and of which the absurdity is more manifest only because the postulate masked in the three others is here frankly displayed.² Without entering into a discussion which would be out of place here, we will content ourselves with observing that motion, as given to

spontaneous perception, is a fact which is quite clear, and that the difficulties and contradictions pointed out by the Eleatic school concern far less the living movement itself than a dead and artificial reorganization of movement by the mind. But we now come to the conclusion of all the preceding paragraphs:

II. *There are real movements.*

The mathematician, expressing with greater precision an idea of common sense, defines position by the distance from points of reference or from axes, and movement by the variation of the distance. Of movement, then, he only retains changes in length; and as the absolute values of the variable distance between a point and an axis, for instance, express either the displacement of the axis with regard to the point or that of the point with regard to the axis, just as we please, he attributes indifferently to the same point, repose or motion. If, then, movement is nothing but a change of distance, the same object is in motion or motionless according to the points to which it is referred, and there is no absolute movement.

But things wear a very different aspect when we pass from mathematics to physics, and from the abstract study of motion to a consideration of the concrete changes occurring in the universe. Though we are free to attribute rest or motion to any material point taken by itself, it is nonetheless true that the aspect of the material universe changes, that the internal configuration of every real system varies, and that here we have no longer the choice between mobility and rest. Movement, whatever its inner nature, becomes an indisputable reality. We may not be able to say what parts of the whole are in motion; motion there is in the whole, nonetheless. Therefore, it is not surprising that the same thinkers, who maintain that every particular movement is relative, speak of the totality of movements as of an absolute. The contradiction

has been pointed out in Descartes, who, after having given to the thesis of relativity its most radical form by affirming that all movement is "reciprocal,"³ formulated the laws of motion as though motion were an absolute.⁴ Leibniz and others after him have remarked this contradiction⁵: it is due simply to the fact that Descartes handles motion as a physicist after having defined it as a geometer. For the geometer all movement is relative: which signifies only, in our view, *that none of our mathematical symbols can express the fact that it is the moving body which is in motion rather than the axes or the points to which it is referred.* And this is very natural because these symbols, always meant for measurement, can express only distances. But that there is real motion no one can seriously deny: if there were not, nothing in the universe would change, and, above all, there would be no meaning in the consciousness which we have of our own movements. In his controversy with Descartes Henry More makes jesting allusion to this last point: "When I am quietly seated, and another, going a thousand paces away, is flushed with fatigue, it is certainly he who moves and I who am at rest."⁶

But if there is absolute motion, is it possible to persist in regarding movement as nothing but a change of place? We should then have to make diversity of place into an absolute difference and distinguish absolute positions in an absolute space. Newton⁷ went as far as this, followed moreover by Euler⁸ and by others. But can this be imagined, or even conceived? A place could be absolutely distinguished from another place only by its quality or by its relation to the totality of space: so space would become, on this hypothesis, either composed of heterogeneous parts or finite. But to finite space we should give another space as boundary, and beneath heterogeneous parts of space we should imagine an homogeneous space as its foundation: in both cases it is to homogeneous and indefinite space that we should necessarily return. We cannot, then,

hinder ourselves either from holding every place to be relative or from believing some motion to be absolute.

It may be urged that real movement is distinguished from relative movement in that it has a real cause, that it emanates from a force. But we must understand what we mean by this last word. In natural science force is only a function of mass and velocity: it is measured by acceleration: it is known and estimated only by the movements which it is supposed to produce in space. One with these movements, it shares their relativity. Hence the physicists, who seek the principle of absolute motion in force defined in this way, are led by the logic of their system back to the hypothesis of an absolute space which they had at first desired to avoid.⁹ So it will become necessary to take refuge in the metaphysical sense of the word and attribute the motion which we perceive in space to profound causes, analogous to those which our consciousness believes it discovers within the feeling of effort. But is the feeling of effort really the sense of a profound cause? Have not decisive analyses shown that there is nothing in this feeling other than the consciousness of movements already effected or begun at the periphery of the body? It is in vain, then, that we seek to found the reality of motion on a cause which is distinct from it: analysis always brings us back to motion itself.

But why seek elsewhere? So long as we apply a movement to the line along which it passes, the same point will appear to us, by turns, according to the points or the axes to which we refer it, either at rest or in movement. But it is otherwise if we draw out of the movement the mobility which is its essence. When my eyes give me the sensation of a movement, this sensation is a reality, and something is effectually going on, whether it is that an object is changing its place before my eyes or that my eyes are moving before the object. A fortiori I am assured of the reality of the movement when I produce it, after having willed to produce

it, and my muscular sense brings me the consciousness of it. That is to say, I grasp the reality of movement when it appears to me, within me, as a change of *state* or of *quality*. But then how should it be otherwise when I perceive changes of quality in things? Sound differs absolutely from silence, and also one sound from another sound. Between light and darkness, between colors, between shades, the difference is absolute. The passage from one to another is also an absolutely real phenomenon. I hold then the two ends of the chain, muscular sensations within me, the sensible qualities of matter without me, and neither in the one case nor in the other do I see movement, if there be movement, as a mere relation: it is an absolute. Now, between these two extremities lie the movements of external *bodies*, properly so-called. How are we to distinguish here between real and apparent movement? Of what object, externally perceived, can it be said that it moves, of what other, that it remains motionless? To put such a question is to admit that the discontinuity established by common sense between objects independent of each other, having each its individuality, comparable to kinds of persons, is a valid distinction. For, on the contrary hypothesis, the question would no longer be how, in given *parts* of matter are changes of position produced, but how, in the *whole*, is a change of aspect effected — a change of which we should then have to ascertain the nature. Let us then formulate at once our third proposition:

III. *All division of matter into independent bodies with absolutely determined outlines is an artificial division.*

A body, that is, an independent material object, presents itself at first to us as a system of qualities in which resistance and color — the data of sight and touch — occupy the center, all the rest being, as it were, suspended from them. Yet the data of sight and

touch are those which most obviously have extension in space, and the essential character of space is continuity. There are intervals of silence between sounds, for the sense of hearing is not always occupied, between odors, between tastes, there are gaps, as though the senses of smell and taste only functioned accidentally: as soon as we open our eyes, on the contrary, the whole field of vision takes on color; and, since solids are necessarily in contact with each other, our touch must follow the surface or the edges of objects without ever encountering a true interruption. How do we parcel out the continuity of material extensity, given in primary perception, into bodies of which each is supposed to have its substance and individuality? No doubt the aspect of this continuity changes from moment to moment; why then do we not purely and simply realize that the whole has changed, as with the turning of a kaleidoscope? Why, in short, do we seek, in the mobility of the whole, tracks that are supposed to be followed by bodies supposed to be in motion? A *moving continuity* is given to us, in which everything changes and yet remains: why then do we dissociate the two terms, permanence and change, and then represent permanence by *bodies* and change by *homogeneous movements* in space? This is no teaching of immediate intuition; but neither is it a demand of science, for the object of science is, on the contrary, to rediscover the natural articulations of a universe we have carved artificially. Moreover, science, as we shall see, by an evermore complete demonstration of the reciprocal action of all material points upon each other, returns, in spite of appearances, to the idea of universal continuity. Science and consciousness are agreed at bottom, provided that we regard consciousness in its most immediate data and science in its remotest aspirations. Why then the irresistible tendency to set up a material universe that is discontinuous, composed of bodies which have clearly defined outlines and change their place, that is, their relation with each other?

Besides consciousness and science, there is life. Beneath the principles of speculation, so carefully analyzed by philosophers, there are tendencies of which the study has been neglected, and which are to be explained simply by the necessity of living, that is, of acting. Already the power conferred on the individual consciousness of manifesting itself in acts requires the formation of distinct material zones, which correspond respectively to living bodies: in this sense, my own body and, by analogy with it, all other living bodies are those which I have the most right to distinguish in the continuity of the universe. But this body itself, as soon as it is constituted and distinguished, is led by its various needs to distinguish and constitute other bodies. In the humblest living being nutrition demands research, then contact, in short, a series of efforts which converge toward a center: this center is just what is made into an object — the object which will serve as food. Whatever the nature of matter, it may be said that life will at once establish in it a primary discontinuity, expressing the duality of the need and of that which must serve to satisfy it. But the need of food is not the only need. Others group themselves round it, all having for object the conservation of the individual or of the species; and each of them leads us to distinguish, besides our own body, bodies independent of it which we must seek or avoid. Our needs are, then, so many searchlights which, directed upon the continuity of sensible qualities, single out in it distinct bodies. They cannot satisfy themselves except upon the condition that they carve out, within this continuity, a body which is to be their own and then delimit other bodies with which the first can enter into relation, as if with persons. To establish these special relations among portions thus carved out from sensible reality is just what we call *living*.

But if this first subdivision of the real answers much less to immediate intuition than to the fundamental needs of life, are we

likely to gain a better knowledge of things by pushing the division yet further? In this way we do indeed prolong the vital movement, but we turn our back upon true knowledge. That is why the rough-and-ready operation, which consists in decomposing the body into parts of the same nature as itself, leads us down a blind alley, where we soon feel ourselves incapable of conceiving either why this division should cease or how it could go on ad infinitum. It is nothing, in fact, but the ordinary condition of *useful action*, unsuitably transported into the domain of *pure knowledge*. We shall never explain by means of particles, whatever these may be, the simple properties of matter: at most we can thus follow into corpuscles as artificial as the *corpus* — the body itself — the actions and reactions of this body with regard to all the others. This is precisely the object of chemistry. It studies *bodies* rather than *matter*; and so we understand why it stops at the atom, which is still endowed with the general properties of matter. But the materiality of the atom dissolves more and more under the eyes of the physicist. We have no reason, for instance, for representing the atom to ourselves as a solid, rather than as liquid or gaseous, nor for picturing the reciprocal action of atoms by shocks rather than in any other way. Why do we think of a solid atom, and why do we think of shocks? Because solids, being the bodies on which we clearly have the most hold, are those which interest us most in our relations with the external world, and because contact is the only means which appears to be at our disposal in order to make our body act upon other bodies. But very simple experiments show that there is never true contact between two neighboring bodies¹⁰, and besides, solidity is far from being an absolutely defined state of matter.¹¹ Solidity and shock borrow, then, their apparent clearness from the habits and necessities of practical life — images of this kind throw no light on the inner nature of things.

Moreover, if there is a truth that science has placed beyond dispute, it is that of the reciprocal action of all parts of matter upon each other. Between the supposed molecules of bodies the forces of attraction and repulsion are at work. The influence of gravitation extends throughout interplanetary space. Something, then, exists between the atoms. It will be said that this something is no longer matter, but force. And we shall be asked to picture to ourselves, stretched between the atoms, threads which will be made more and more tenuous, until they are invisible and even, we are told, immaterial. But what purpose can this crude image serve? The preservation of life no doubt requires that we should distinguish, in our daily experience, between passive *things* and *actions* effected by these things in space. As it is useful to us to fix the seat of the *thing* at the precise point where we might touch it, its palpable outlines become for us its real limit, and we then see in its *action* a something, I know not what, which, being altogether different, can part company with it. But since a theory of matter is an attempt to find the reality hidden beneath these customary images which are entirely relative to our needs, from these images it must first of all set itself free. And, indeed, we see force and matter drawing nearer together the more deeply the physicist has penetrated into their effects. We see force more and more materialized, the atom more and more idealized, the two terms converging toward a common limit and the universe thus recovering its continuity. We may still speak of atoms; the atom may even retain its individuality for our mind which isolates it, but the solidity and the inertia of the atom dissolve either into movements or into lines of force whose reciprocal solidarity brings back to us universal continuity. To this conclusion were bound to come, though they started from very different positions, the two physicists of the last century who have most closely investigated the constitution of matter, Lord Kelvin and Faraday. For Faraday the

atom is a center of force. He means by this that the individuality of the atom consists in the mathematical point at which cross, radiating throughout space, the indefinite lines of force which really constitute it: thus each atom occupies the whole space to which gravitation extends and all atoms are interpenetrating.¹² Lord Kelvin, moving in another order of ideas, supposes a perfect, continuous, homogeneous and incompressible fluid, filling space: what we term an atom he makes into a vortex ring, ever whirling in this continuity, and owing its properties to its circular form, its existence and, consequently, its individuality to its motion.¹³ But on either hypothesis, the nearer we draw to the ultimate elements of matter the better we note the vanishing of that discontinuity which our senses perceived on the surface. Psychological analysis has already revealed to us that this discontinuity is relative to our needs: every philosophy of nature ends by finding it incompatible with the general properties of matter.

In truth, vortices and lines of force are never, to the mind of the physicist, more than convenient figures for illustrating his calculations. But philosophy is bound to ask why these symbols are more convenient than others and why they permit of further advance. Could we, working with them, get back to experience, if the notions to which they correspond did not at least point out the direction in which we may seek for a representation of the real? Now the direction which they indicate is obvious; they show us, pervading concrete extensity, *modifications*, *perturbations*, changes of *tension* or of *energy* and nothing else. It is by this, above all, that they tend to unite with the purely psychological analysis of motion which we considered to begin with, an analysis which presented it to us not as a mere change of relation between objects to which it was, as it were, an accidental addition, but as a true and, in some way, independent, reality. Neither science nor consciousness, then, is opposed to this last proposition:

IV. *Real movement is rather the transference of a state than of a thing.*

By formulating these propositions, we have, in reality, only been progressively narrowing the interval between the two terms which it is usual to oppose to each other – qualities, or sensations, and movements. At first sight, the distance appears impassable. Qualities are heterogeneous, movements homogeneous. Sensations, essentially indivisible, escape measurement; movements, always divisible, are distinguished by calculable differences of direction and velocity. We are inclined to put qualities, in the form of sensations, in consciousness, while movements are supposed to take place independently of us in space. These movements, compounded together, we confess, will never yield anything but movements; our consciousness, though incapable of coming into touch with them, yet by a mysterious process is said to translate them into sensations, which afterwards project themselves into space and come to overlie, we know not how, the movements they translate. Hence two different worlds, incapable of communicating otherwise than by a miracle – on the one hand, that of motion in space, on the other hand, that of consciousness with sensations. Now certainly the difference is irreducible (as we have shown in an earlier work¹⁴) between quality on the one hand and pure quantity on the other. But this is just the question: do real movements present merely differences of quantity, or are they not quality itself, vibrating, so to speak, internally, and beating time for its own existence through an often incalculable number of moments? Motion, as studied in mechanics, is but an abstraction or a symbol, a common measure, a common denominator, permitting the comparison of all real movements with each other; yet these movements, regarded in themselves, are indivisibles which occupy duration, involve a before and an after, and link together the successive moments of time by a thread of variable quality which cannot be

without some likeness to the continuity of our own consciousness. May we not conceive, for instance, that the irreducibility of two perceived colors is due mainly to the narrow duration into which are contracted the billions of vibrations which they execute in one of our moments? If we could stretch out this duration, that is to say, live it at a slower rhythm, should we not, as the rhythm slowed down, see these colors pale and lengthen into successive impressions, still colored, no doubt, but nearer and nearer to coincidence with pure vibrations? In cases where the rhythm of the movement is slow enough to tally with the habits of our consciousness – as in the case of the deep notes of the musical scale, for instance – do we not feel that the quality perceived analyzes itself into repeated and successive vibrations, bound together by an inner continuity? That which usually hinders this mutual approach of motion and quality is the acquired habit of attaching movement to elements – atoms or what not – which interpose their solidity between the movement itself and the quality into which it contracts. As our daily experience shows us bodies in motion, it appears to us that there ought to be, in order to sustain the elementary movements to which qualities may be reduced, diminutive bodies or corpuscles. Motion becomes then for our imagination no more than an accident, a series of positions, a change of relations; and, as it is a law of our representation that the stable drives away the unstable, the important and central element for us becomes the atom, between the successive positions of which movement then becomes a mere link. But not only has this conception the inconvenience of merely carrying over to the atom all the problems raised by matter; not only does it wrongly set up as an absolute that division of matter which, in our view, is hardly anything but an outward projection of human needs; it also renders unintelligible the process by which we grasp, in perception, at one and the same time, a *state* of our consciousness and a *reality*

independent of ourselves. This mixed character of our immediate perception, this appearance of a realized contradiction, is the principal theoretical reason that we have for believing in an external world which does not coincide absolutely with our perception. As it is overlooked in the doctrine that regards sensation as entirely heterogeneous with movements, of which sensation is then supposed to be only a translation into the language of consciousness, this doctrine ought, it would seem, to confine itself to sensations, which it had indeed begun to do by setting them up as the actual data, and not add to them movements which, having no possible contact with them, are no longer anything but their useless duplicate. Realism, so understood, is self-destructive. Indeed we have no choice: if our belief in a more or less homogeneous substratum of sensible qualities has any ground, this can only be found in an *act* which makes us seize or divine, *in quality itself*, something which goes beyond sensation, as if this sensation itself were pregnant with details suspected yet unperceived. Its objectivity — that is to say, what it contains over and above what it yields up — must then consist, as we have foreshadowed, precisely in the immense multiplicity of the movements which it executes, so to speak, within itself as a chrysalis. Motionless on the surface, in its very depth it lives and vibrates.

As a matter-of-fact, no one represents to himself the relation between quantity and quality in any other way. To believe in realities, distinct from that which is perceived, is above all to recognize that the order of our perceptions depends on them, and not on us. There must be, then, within the perceptions which fill a given moment, the reason of what will happen in the following moment. And mechanism only formulates this belief with more precision when it affirms that the states of matter can be deduced one from the other. It is true that this deduction is possible only if we discover, beneath the apparent heterogeneity of sensible quali-

ties, homogeneous elements which lend themselves to calculation. But if these elements are external to the qualities of which they are meant to explain the regular order, they can no longer render the service demanded of them, because then the qualities must be supposed to come to overlie them by a kind of miracle, and cannot correspond to them unless we bring in some pre-established harmony. So, do what we will, we cannot avoid placing those movements *within* these qualities, in the form of internal vibrations, and then considering the vibrations as less homogeneous, and the qualities as less heterogeneous, than they appear, and lastly attributing the difference of aspect in the two terms to the necessity which lies upon what may be called an endless multiplicity of contracting into a duration too narrow to permit the separation of its moments.

We must insist on this last point, to which we have already alluded elsewhere, and which we regard as essential. The duration lived by our consciousness is a duration with its own determined rhythm, a duration very different from the time of the physicist, which can store up, in a given interval, as great a number of phenomena as we please. In the space of a second, red light — the light which has the longest wavelength, and of which, consequently, the vibrations are the least frequent — accomplishes 400 billion successive vibrations. If we would form some idea of this number, we should have to separate the vibrations sufficiently to allow our consciousness to count them or at least to record explicitly their succession, and we should then have to enquire how many days or months or years this succession would occupy. Now the smallest interval of empty time which we can detect equals, according to Exner, 0.002 seconds; and it is even doubtful whether we can perceive in succession several intervals as short as this. Let us admit, however, that we can go on doing so indefinitely. Let us imagine, in a word, a consciousness which should

watch the succession of 400 billion vibrations, each instantaneous, and each separated from the next only by the 0.002 of a second necessary to distinguish them. A very simple calculation shows that more than 25,000 years would elapse before the conclusion of the operation. Thus the sensation of red light, experienced by us in the course of a second, corresponds in itself to a succession of phenomena which, separately distinguished in our duration with the greatest possible economy of time, would occupy more than 250 centuries of our history. Is this conceivable? We must distinguish here between our own duration and time in general. In our duration — the duration which our consciousness perceives — a given interval can only contain a limited number of phenomena of which we are aware. Do we conceive that this content can increase; and when we speak of an infinitely divisible time, is it our own duration that we are thinking of?

As long as we are dealing with space, we may carry the division as far as we please; we change in no way, thereby, the nature of what is divided. This is because space, by definition, is outside us; it is because a part of space appears to us to subsist even when we cease to be concerned with it; so, even when we leave it undivided, we know that it can wait and that a new effort of our imagination may decompose it when we choose. As, moreover, it never ceases to be space, it always implies juxtaposition and, consequently, possible division. Abstract space is, indeed, at bottom, nothing but the mental diagram of infinite divisibility. But, with duration, it is quite otherwise. The parts of our duration are one with the successive moments of the act which divides it; if we distinguish in it so many instants, so many parts it indeed possesses; and if our consciousness can only distinguish in a given interval a definite number of elementary acts, if it terminates the division at a given point, there also terminates the divisibility. In vain does our imagination endeavor to go on, to carry division further still,

and to quicken, so to speak, the circulation of our inner phenomena: the very effort by which we are trying to effect this further division of our duration lengthens that duration by just so much. And yet we know that millions of phenomena succeed each other while we hardly succeed in counting a few. We know this not from physics alone; the crude experience of the senses allows us to divine it; we are dimly aware of successions in nature much more rapid than those of our internal states. How are we to conceive them, and what is this duration of which the capacity goes beyond all our imagination?

It is not ours, assuredly; but neither is it that homogeneous and impersonal duration, the same for everything and for every one, which flows onward, indifferent and void, external to all that endures. This imaginary homogeneous time is, as we have endeavored to show elsewhere,¹⁵ an idol of language, a fiction whose origin is easy to discover. In reality there is no one rhythm of duration; it is possible to imagine many different rhythms which, slower or faster, measure the degree of tension or relaxation of different kinds of consciousness and thereby fix their respective places in the scale of being. To conceive of durations of different tensions is perhaps both difficult and strange to our mind, because we have acquired the useful habit of substituting for the true duration, lived by consciousness, an homogeneous and independent Time; however, in the first place, it is easy, as we have shown, to detect the illusion which renders such a thought foreign to us, and, secondly, this idea has in its favor, at bottom, the tacit agreement of our consciousness. Do we not sometimes perceive in ourselves, in sleep, two contemporaneous and distinct persons one of whom sleeps a few minutes, while the other's dream fills days and weeks? And would not the whole of history be contained in a very short time for a consciousness at a higher degree of tension than our own, which should watch the development of humanity while contract-

ing it, so to speak, into the great phases of its evolution? In short, then, to perceive consists in condensing enormous periods of an infinitely diluted existence into a few more differentiated moments of an intenser life, and in thus summing up a very long history. To perceive means to immobilize.

To say this is to say that we seize, in the act of perception, something which outruns perception itself, although the material universe is not essentially different or distinct from the representation which we have of it. In one sense, my perception is indeed truly within me, since it contracts into a single moment of my duration that which, taken in itself, spreads over an incalculable number of moments. But, if you abolish my consciousness, the material universe subsists exactly as it was; only, since you have removed that particular rhythm of duration which was the condition of my action upon things, these things draw back into themselves, mark as many moments in their own existence as science distinguishes in it; and sensible qualities, without vanishing, are spread and diluted in an incomparably more divided duration. Matter thus resolves itself into numberless vibrations, all linked together in uninterrupted continuity, all bound up with each other, and traveling in every direction like shivers through an immense body. In short, try first to connect together the discontinuous objects of daily experience; then, resolve the motionless continuity of their qualities into vibrations on the spot; finally, fix your attention on these movements, by abstracting from the divisible space which underlies them and considering only their mobility (that undivided act which our consciousness becomes aware of in our own movements): you will thus obtain a vision of matter, fatiguing perhaps for your imagination, but pure, and freed from all that the exigencies of life compel you to add to it in external perception. Now bring back consciousness, and with it the exigencies of life: at long, very long, intervals, and by as many leaps over enor-

mous periods of the inner history of things, quasi-instantaneous views will be taken, views which this time are bound to be pictorial, and of which the more vivid colors will condense an infinity of elementary repetitions and changes. In just the same way the multitudinous successive positions of a runner are contracted into a single symbolic attitude, which our eyes perceive, which art reproduces, and which becomes for us all the image of a man running. The glance which falls at any moment on the things about us only takes in the effects of a multiplicity of inner repetitions and evolutions, effects which are, for that very reason, discontinuous, and into which we bring back continuity by the relative movements that we attribute to "objects" in space. The change is everywhere, but inward; we localize it here and there, but outwardly; thus we constitute bodies which are both stable as to their qualities and mobile as to their positions, a mere change of place summing up in itself, to our eyes, the universal transformation.

That there are, in a sense, multiple objects, that one man is distinct from another man, tree from tree, stone from stone, is an indisputable fact; for each of these beings, each of these things, has characteristic properties and obeys a determined law of evolution. But the separation between a thing and its environment cannot be absolutely definite and clear-cut; there is a passage by insensible gradations from the one to the other: the close solidarity which binds all the objects of the material universe, the perpetuity of their reciprocal actions and reactions, is sufficient to prove that they have not the precise limits which we attribute to them. Our perception outlines, so to speak, the form of their nucleus; it terminates them at the point where our possible action upon them ceases, where, consequently, they cease to interest our needs. Such is the primary and the most apparent operation of the perceiving mind: it marks out divisions in the continuity of the extended, simply following the suggestions of our requirement

and the needs of practical life. But, in order to divide the real in this manner, we must first persuade ourselves that the real is divisible at will. Consequently we must throw beneath the continuity of sensible qualities, that is to say, beneath concrete extensity, a network, of which the meshes may be altered to any shape whatsoever and become as small as we please: this substratum which is merely conceived, this wholly ideal diagram of arbitrary and infinite divisibility, is homogeneous space. Now, at the same time that our actual and so to speak instantaneous perception effects this division of matter into independent objects, our memory solidifies into sensible qualities the continuous flow of things. It prolongs the past into the present, because our action will dispose of the future in the exact proportion in which our perception, enlarged by memory, has contracted the past. To reply, to an action received, by an immediate reaction which adopts the rhythm of the first and continues it in the same duration, to be in the present and in a present which is always beginning again – this is the fundamental law of matter: herein consists *necessity*. If there are actions that are really *free*, or at least partly indeterminate, they can only belong to beings able to fix, at long intervals, that becoming to which their own becoming clings, able to solidify it into distinct moments, and so to condense matter and, by assimilating it, to digest it into movements of reaction which will pass through the meshes of natural necessity. The greater or lesser tension of their duration, which expresses, at bottom, their greater or lesser intensity of life, thus determines both the degree of the concentrating power of their perception and the measure of their liberty. The independence of their action upon surrounding matter becomes more and more assured in the degree that they free themselves from the particular rhythm which governs the flow of this matter. So that sensible qualities, as they are found in our memory-shot perception, are, in fact, the successive moments obtained by a solidification of the

real. But, in order to distinguish these moments, and also to bind them together by a thread which shall be common alike to our own existence and to that of things, we are bound to imagine a diagrammatic design of succession in general, an homogeneous and indifferent medium, which is to the flow of matter in the sense of length as space is to it in the sense of breadth: herein consists homogeneous time.

Homogeneous space and homogeneous time are then neither properties of things nor essential conditions of our faculty of knowing them: they express, in an abstract form, the double work of solidification and of division which we effect on the moving continuity of the real in order to obtain there a fulcrum for our action, in order to fix within it starting points for our operation, in short, to introduce into it real changes. They are the diagrammatic design of our eventual action upon matter. The first mistake, which consists in viewing this homogeneous time and space as properties of things, leads to the insurmountable difficulties of metaphysical dogmatism – whether mechanistic or dynamistic – dynamism erecting into so many absolutes the successive crosscuts which we make in the course of the universe as it flows along, and then endeavoring vainly to bind them together by a kind of qualitative deduction; mechanism attaching itself rather, in any one of these crosscuts, to the divisions made in its breadth, that is to say, to instantaneous differences in magnitude and position, and striving no less vainly to produce, by the variation of these differences, the succession of sensible qualities. Shall we then seek refuge in the other hypothesis, and maintain, with Kant, that space and time are forms of our sensibility? If we do, we shall have to look upon matter and spirit as equally unknowable. Now, if we compare these two hypotheses, we discover in them a common basis: by setting up homogeneous time and homogeneous space either as realities that are contemplated or as forms of contemplation, they both attribute

to space and time an interest which is *speculative* rather than *vital*. Hence there is room, between metaphysical dogmatism, on the one hand, and critical philosophy, on the other hand, for a doctrine which regards homogeneous space and time as principles of division and of solidification introduced into the real, with a view to action and not with a view to knowledge, which attributes to things a real duration and a real extensity, and which, in the end, sees the source of all difficulty no longer in that duration and in that extensity (which really belong to things and are directly manifest to the mind), but in the homogeneous space and time which we stretch out beneath them in order to divide the continuous, to fix the becoming, and provide our activity with points to which it can be applied.

But our erroneous conceptions about sensible quality and space are so deeply rooted in the mind that it is important to attack them from every side. We may say then, to reveal yet another aspect, that they imply this double postulate, accepted equally by realism and by idealism: first, that between different kinds of qualities there is nothing common, and second, that neither is there anything common between extensity and pure quality. We maintain, on the contrary, that there is something common between qualities of different orders, that they all share in extensity, though in different degrees, and that it is impossible to overlook these two truths without entangling in a thousand difficulties the metaphysic of matter, the psychology of perception and, more generally, the problem of the relation of consciousness with matter. Without insisting on these consequences, let us content ourselves for the moment with showing, in the various theories of matter, the two postulates which we dispute and the illusion from which they proceed.

The essence of English idealism is to regard extensity as a property of tactile perceptions. As it sees nothing in sensible qualities

but sensations, and in sensations themselves nothing but mental states, it finds in the different qualities nothing on which to base the parallelism of their phenomena. It is therefore constrained to account for this parallelism by a habit which makes the actual perceptions of sight, for instance, suggest to us potential sensations of touch. If the impressions of two different senses resemble each other no more than the words of two languages, we shall seek in vain to deduce the data of the one from the data of the other. They have no common element; consequently, there is nothing common between extensity, which is always tactile, and the data of the senses other than that of touch, which must then be supposed to be in no way extended.

But neither can atomistic realism, which locates movements in space and sensations in consciousness, discover anything in common between the modifications or phenomena of extensity and the sensations which correspond to them. Sensations are supposed to issue from the modification as a kind of phosphorescence, or, again, to translate into the language of the soul the manifestations of matter; but in neither case do they reflect, we are told, the image of their causes. No doubt they may all be traced to a common origin, which is movement in space; but, just because they develop outside of space, they must forego, qua sensations, the kinship which binds their causes together. In breaking with space they break also their connection with each other; they have nothing in common between them, nor with extensity.

Idealism and realism, then, only differ in that the first relegates extensity to tactile perception, of which it becomes the exclusive property, while the second thrusts extensity yet further back, outside of all perception. But the two doctrines are agreed in maintaining the discontinuity of the different orders of sensible qualities, and also the abrupt transition from that which is purely extended to that which is not extended at all. Now the principal

difficulties which they both encounter in the theory of perception arise from this common postulate.

For suppose, to begin with, as Berkeley did, that all perception of extensity is to be referred to the sense of touch. We may, indeed, if you will have it so, deny extension to the data of hearing, smell and taste; however, we must at least explain the genesis of a visual space that corresponds to tactile space. It is alleged, indeed, that sight ends by becoming symbolic of touch and that there is nothing more in the visual perception of the order of things in space than a suggestion of tactile perception. But we fail to understand how the visual perception of relief, for instance, a perception which makes upon us an *impress sui generis*, and indeed indescribable, could ever be one with the mere remembrance of a sensation of touch. The association of a memory with a present perception may complicate this perception by enriching it with an element already known, but it cannot *create* a new kind of impress, a new quality of perception: now the visual perception of relief presents an absolutely original character. It may be urged that it is possible to give the illusion of relief with a plane surface. This only proves that a surface, where the play of light and shadow on an object in relief is more or less well imitated, is enough to *remind* us of relief; but how could we be reminded of relief if relief had not been, at first, actually perceived? We have already said, but cannot repeat too often, that our theories of perception are entirely vitiated by the idea that if a certain arrangement produces, at a given moment, the illusion of a certain perception, it must always have been able to produce the perception itself — as if the very function of memory were not to make the complexity of the effect survive the simplification of the cause! Again, it may be urged that the retina itself is a plane surface, and that if we perceive by sight something that is extended, it can only be the image on the retina. But is it not true, as we have shown at the beginning of this

book, that in the visual perception of an object the brain, nerves, retina *and the object itself* form a connected whole, a continuous process in which the image on the retina is only an episode? By what right, then, do we isolate this image to sum up in it the whole of perception? And then, as we have also shown,¹⁶ how could a surface be perceived as a surface otherwise than in a space that has recovered its three dimensions? Berkeley, at least, carried out his theory to its conclusion; he denied to sight any perception of extensity. But the objections which we raised only acquire the more force from this, since it is impossible to understand the spontaneous creation, by a mere association of memories, of all that is original in our visual perceptions of line, surface and volume, perceptions so distinct that the mathematician does not go beyond them and works with a space that is purely visual. But we will not insist on these various points, nor on the disputable arguments drawn from the observation of those, born blind, whose sight has been surgically restored: the theory of the acquired perceptions of sight, classical since Berkeley's day, does not seem likely to resist the multiplied attacks of contemporary psychology.¹⁷ Passing over the difficulties of a psychological order, we will content ourselves with drawing attention to another point, in our opinion, essential. Suppose for a moment that the eye does not, at the outset, give us any information as to any of the relations of space. Visual form, visual relief, visual distance, then become the symbols of tactile perceptions. But how is it, then, that this symbolism succeeds? Here are objects which change their shape and move. Vision takes note of definite changes which touch afterwards verifies. There is, then, in the two series, visual and tactile, or in their causes, something which makes them correspond one to another and ensures the constancy of their parallelism. What is the principle of this connection?

For English idealism, it can only be some *deus ex machina*,

and we are confronted with a mystery again. For ordinary realism, it is in a space distinct from the sensations themselves that the principle of the correspondence of sensations one with another lies. But this doctrine only throws the difficulty further back and even aggravates it, for we shall now want to know how a system of homogeneous movements in space evokes various sensations which have no resemblance whatever with them. Just now the genesis of visual perception of space by a mere association of images appeared to us to imply a real creation *ex nihilo*; here all the sensations are born of nothing or at least have no resemblance with the movement that occasions them. In the main, this second theory differs much less from the first than is commonly believed. Amorphous space, atoms jostling against each other, are only our tactile perceptions made objective, set apart from all our other perceptions on account of the special importance which we attribute to them, and made into independent realities – thus contrasting with the other sensations which are then supposed to be only the symbols of these. Indeed, in the course of this operation, we have emptied these tactile sensations of a part of their content; after having reduced all other senses to being mere appendages of the sense of touch, touch itself we mutilate, leaving out everything in it that is not a mere abstract or diagrammatic design of tactile perception: with this design we then go on to construct the external world. Can we wonder that between this abstraction, on the one hand, and sensations, on the other hand, no possible link is to be found? But the truth is that space is no more without us than within us, and that it does not belong to a privileged group of sensations. *All* sensations partake of extensity; all are more or less deeply rooted in it; and the difficulties of ordinary realism arise from the fact that, the kinship of the sensations one with another having been extracted and placed apart under the form of an indefinite and empty space, we no longer see either how these sensations can

partake of extensity or how they can correspond with each other.

Contemporary psychology is more and more impressed with the idea that all our sensations are in some degree extensive. It is maintained, not without an appearance of reason, that there is no sensation without extensity¹⁸ or without a feeling “of volume.”¹⁹ English idealism sought to reserve to tactile perception a monopoly of the extended, the other senses dealing with space only insofar as they remind us of the data of touch. A more attentive psychology reveals to us, on the contrary, and no doubt will hereafter reveal still more clearly, the need of regarding all sensations as primarily extensive, their extensity fading and disappearing before the high intensity and usefulness of tactile, and also, no doubt, of visual, extensity.

So understood, space is indeed the symbol of fixity and of infinite divisibility. Concrete extensity, that is to say, the diversity of sensible qualities, is not within space; rather is it space that we thrust into extensity. Space is not a ground on which real motion is posited; rather is it real motion that deposits space beneath itself. But our imagination, which is preoccupied above all by the convenience of expression and the exigencies of material life, prefers to invert the natural order of the terms. Accustomed to seek its fulcrum in a world of ready-made motionless images, of which the apparent fixity is hardly anything else but the outward reflection of the stability of our lower needs, it cannot help believing that rest is anterior to motion, cannot avoid taking rest as its point of reference and its abiding place. Therefore, it comes to see movement as only a variation of distance, space being thus supposed to precede motion. Then, in a space which is homogeneous and infinitely divisible, we draw, in imagination, a trajectory and fix positions: afterwards, applying the movement to the trajectory, we see it divisible like the line we have drawn, and equally denuded of quality. Can we wonder that our understanding, working thence-

forward on this idea, which represents precisely the reverse of the truth, discovers in it nothing but contradictions? Having assimilated movements to space, we find these movements homogeneous like space; and since we no longer see in them anything but calculable differences of direction and velocity, all relation between movement and quality is for us destroyed. So that all we have to do is to shut up motion in space, qualities in consciousness, and to establish between these two parallel series, incapable, by hypothesis, of ever meeting, a mysterious correspondence. Thrown back into consciousness, sensible qualities become incapable of recovering extensity. Relegated to space, and, indeed, to abstract space, where there is never but a single instant and where everything is always being born anew — movement abandons that solidarity of the present with the past which is its very essence. And as these two aspects of perception, quality and movement, have been made equally obscure, the phenomenon of perception, in which a consciousness, assumed to be shut up in itself and foreign to space, is supposed to translate what occurs in space, becomes a mystery. But let us, on the contrary, banish all preconceived idea of interpreting or measuring, let us place ourselves face-to-face with immediate reality: at once we find that there is no impassable barrier, no essential difference, no real distinction even, between perception and the thing perceived, between quality and movement.

So we return, by a roundabout way, to the conclusions worked out in the first chapter of this book. Our perception, we said, is originally in things rather than in the mind, without us rather than within. The several kinds of perception correspond to so many directions actually marked out in reality. But, we added, this perception, which coincides with its object, exists rather in theory

than in fact: it could only happen if we were shut up within the present moment. In concrete perception, memory intervenes, and the subjectivity of sensible qualities is due precisely to the fact that our consciousness, which begins by being only memory, prolongs a plurality of moments into each other, contracting them into a single intuition.

Consciousness and matter, body and soul, were thus seen to meet each other in perception. But, in one aspect, this idea remained for us obscure because our perception and consequently, also our consciousness seemed thus to share in the divisibility which is attributed to matter. If, on the dualistic hypothesis, we naturally shrink from accepting the partial coincidence of the perceived object and the perceiving subject, it is because we are conscious of the undivided unity of our perception, whereas the object appears to us to be, in essence, infinitely divisible. Hence the hypothesis of a consciousness with inextensive sensations, placed over against an extended multiplicity. But, if the divisibility of matter is entirely relative to our action thereon, that is to say, to our faculty of modifying its aspect, if it belongs not to matter itself but to the space which we throw beneath this matter in order to bring it within our grasp, then the difficulty disappears. Extended matter, regarded as a whole, is like a consciousness where everything balances and compensates and neutralizes everything else; it possesses in very truth the indivisibility of our perception; so, inversely, we may without scruple attribute to perception something of the extensity of matter. These two terms, perception and matter, approach each other in the measure that we divest ourselves of what may be called the prejudices of action: sensation recovers extensity, the concrete extended recovers its natural continuity and indivisibility. And homogeneous space, which stood between the two terms like an insurmountable barrier, is then seen to have no other reality than that of a diagram or a symbol. It interests the behavior of a

being which acts upon matter, but not the work of a mind which speculates on its essence.

Thereby also some light may be thrown upon the problem toward which all our enquiries converge, that of the union of body and soul. The obscurity of this problem, on the dualistic hypothesis, comes from the double fact that matter is considered as essentially divisible and every state of the soul as rigorously inextensive, so that from the outset the communication between the two terms is severed. And when we go more deeply into this double postulate, we discover, in regard to matter, a confusion of concrete and indivisible extensity with the divisible space which underlies it and also, in regard to mind, the illusory idea that there are no degrees, no possible transition, between the extended and the unextended. But if these two postulates involve a common error, if there is a gradual passage from the idea to the image and from the image to the sensation; if, in the measure in which it evolves toward actuality, that is to say, toward action, the mental state draws nearer to extension; if, finally, this extension once attained remains undivided and therefore is not out of harmony with the unity of the soul; we can understand that spirit can rest upon matter and, consequently, unite with it in the act of pure perception, yet nevertheless be radically distinct from it. It is distinct from matter in that it is, even then, *memory*, that is to say, a synthesis of past and present with a view to the future, in that it contracts the moments of this matter in order to use them and to manifest itself by actions which are the final aim of its union with the body. We were right, then, when we said, at the beginning of this book, that the distinction between body and mind must be established in terms not of space but of time.

The mistake of ordinary dualism is that it starts from the spatial point of view: it puts, on the one hand, matter with its modifications, in space; on the other hand, it places unextended

sensations in consciousness. Hence the impossibility of understanding how the spirit acts upon the body or the body upon spirit. Hence hypotheses which are and can be nothing but disguised statements of the fact — the idea of a parallelism or of a preestablished harmony. But hence also the impossibility of constituting either a psychology of memory or a metaphysic of matter. We have striven to show that this psychology and this metaphysic are bound up with each other and that the difficulties are less formidable in a dualism which, starting from *pure* perception, where subject and object coincide, follows the development of the two terms in their respective durations: matter, the further we push its analysis, tending more and more to be only a succession of infinitely rapid moments which may be deduced each from the other and thereby are *equivalent to each other*; and spirit, being in perception already memory, and declaring itself more and more as a prolonging of the past into the present, a *progress*, a true evolution.

But does the relation of body and mind become thereby clearer? We substitute a temporal for a spatial distinction: are the two terms any the more able to unite? It must be observed that the first distinction does not admit of degree: matter is supposed to be in space, spirit to be extraspatial; there is no possible transition between them. But if, in fact, the humblest function of spirit is to bind together the successive moments of the duration of things, if it is by this that it comes into contact with matter and by this also that it is first of all distinguished from matter, we can conceive an infinite number of degrees between matter and fully developed spirit — a spirit capable of action which is not only undetermined, but also reasonable and reflective. Each of these successive degrees, which measures a growing intensity of life, corresponds to a higher tension of duration and is made manifest externally by a greater development of the sensori-motor system. But let us consider this nervous system itself: we note that its increasing complexity appears

to allow an ever greater latitude to the activity of the living being, the faculty of waiting before reacting, and of putting the excitation received into relation with an ever richer variety of motor mechanisms. Yet this is only the outward aspect; and the more complex organization of the nervous system, which seems to assure the greater independence of the living being in regard to matter, is only the material symbol of that independence itself. That is to say, it is only the symbol of the inner energy which allows the being to free itself from the rhythm of the flow of things and to retain in an ever higher degree the past in order to influence ever more deeply the future – the symbol, in the special sense which we give to the word, of its memory. Thus, between brute matter and the mind most capable of reflection there are all possible intensities of memory or, what comes to the same thing, all the degrees of freedom. On the first hypothesis, that which expresses the distinction between spirit and body in terms of space, body and spirit are like two railway lines which cut each other at a right angle; on the second hypothesis, the rails come together in a curve, so that we pass insensibly from the one to the other.

But have we here anything but a metaphor? Does not a marked distinction, an irreducible opposition, remain between matter properly so-called and the lowest degree of freedom or of memory? Yes, no doubt, the distinction subsists, but union becomes possible, since it would be given, under the radical form of a partial coincidence, in *pure* perception. The difficulties of ordinary dualism come, not from the distinction between the two terms, but from the impossibility of seeing how the one is grafted upon the other. Now, as we have shown, pure perception, which is the lowest degree of mind – mind without memory – is really part of matter, as we understand matter. We may go further: memory does not intervene as a function of which matter has no presentiment and which it does not imitate in its own way. If matter does not

remember the past, it is because it repeats the past unceasingly, because, subject to necessity, it unfolds a series of moments of which each is the equivalent of the preceding moment and may be deduced from it: thus its past is truly given in its present. But a being which evolves more or less freely creates something new every moment: in vain, then, should we seek to read its past in its present unless its past were deposited within it in the form of memory. Thus, to use again a metaphor which has more than once appeared in this book, it is necessary, and for similar reasons, that the past should be *acted* by matter, *imagined* by mind.

Summary and Conclusion

I. The idea that we have disengaged from the facts and confirmed by reasoning is that our body is an instrument of action, and of action only. In no degree, in no sense, under no aspect, does it serve to prepare, far less to explain, a representation. Consider external perception: there is only a difference of degree, not of kind, between the so-called perceptive faculties of the brain and the reflex functions of the spinal cord. While the spinal cord transforms the excitations received into movements which are more or less necessarily executed, the brain puts them into relation with motor mechanisms which are more or less freely chosen; but that which the brain explains in our perception is action begun, prepared or suggested, it is not perception itself. Consider memory. The body retains motor habits capable of acting the past over again; it can resume attitudes in which the past will insert itself; or, again, by the repetition of certain cerebral phenomena, which have prolonged former perceptions, it can furnish to remembrance a point of attachment with the actual, a means of recovering its lost influence upon present reality: but in no case can the brain store up recollections or images. Thus, neither in perception, nor in memory, nor a fortiori in the higher attainments of mind, does the body

contribute directly to representation. By developing this hypothesis under its manifold aspects and thus pushing dualism to an extreme, we appeared to divide body and soul by an impassable abyss. In truth, we were indicating the only possible means of bringing them together.

II. All the difficulties raised by this problem, either in ordinary dualism, or in materialism and idealism, come from considering, in the phenomena of perception and memory, the physical and the mental as duplicates of one another. Suppose I place myself at the materialist point of view of the epiphenomenal consciousness: I am quite unable to understand why certain cerebral phenomena are accompanied by consciousness, that is to say, of what use could the conscious repetition of the material universe I have begun by positing be, or how could it ever arise. Suppose I prefer idealism: I then allow myself only perceptions, and my body is one of them. But whereas observation shows me that the images I perceive are entirely changed by very slight alterations of the image I call my body (since I have only to shut my eyes and my visual universe disappears), science assures me that all phenomena must succeed and condition one another according to a determined order, in which effects are strictly proportioned to causes. I am obliged, therefore, to seek, in the image which I call my body, and which follows me everywhere, for changes which shall be the equivalents – but the well-regulated equivalents, now deducible from each other – of the images which succeed one another around my body: the cerebral movements, to which I am led back in this way again are the duplicates of my perceptions. It is true that these movements are still perceptions, “possible” perceptions – so that this second hypothesis is more intelligible than the first; but, on the other hand, it must suppose, in its turn, an inexplicable correspondence between my real perception of things and my

possible perception of certain cerebral movements in any way resemble these things. When we look a shall see that this is the reef upon which all idealism there is no possible transition from the order which by our senses to the order which we are to conceive our science, – or, if we are dealing more particu

Kantian idealism, no possible transition from sense to understanding. So my only refuge seems to be ordinary dualism. I place matter on this side, mind on that, and I suppose that cerebral movements are the cause or the occasion of my representation of objects. But if they are its cause, if they are enough to produce it, I must fall back, step-by-step, upon the materialistic hypothesis of an epiphenomenal consciousness. If they are only its occasion, I thereby suppose that they do not resemble it in any way, and so, depriving matter of all the qualities which I conferred upon it in my representation, I come back to idealism. Idealism and materialism are then the two poles between which this kind of dualism will always oscillate; and when, in order to maintain the duality of substances, it decides to make them both of equal rank, it will be led to regard them as two translations of one and the same original, two parallel and predetermined developments of a single principle, and thus to deny their reciprocal influence, and, by an inevitable consequence, to sacrifice freedom.

Now, if we look beneath these three hypotheses, we find that they have a common basis: all three regard the elementary operations of the mind, perception and memory, as operations of pure knowledge. What they place at the origin of consciousness is either the useless duplicate of an external reality or the inert material of an intellectual construction entirely disinterested: but they always neglect the relation of perception with action and of memory with conduct. Now, it is no doubt possible to conceive, as an ideal limit, a memory and a perception that are disinterested; but, in fact, it

is toward action that memory and perception are turned; it is action that the body prepares. Do we consider perception? The growing complexity of the nervous system shunts the excitation received onto an ever larger variety of motor mechanisms and so sketches simultaneously an ever larger number of possible actions. Do we turn to memory? We note that its primary function is to evoke all those past perceptions which are analogous to the present perception, to recall to us what preceded and followed them, and so to suggest to us that decision which is the most useful. But this is not all. By allowing us to grasp in a single intuition multiple moments of duration, it frees us from the movement of the flow of things, that is to say, from the rhythm of necessity. The more of these moments memory can contract into one, the firmer is the hold which it gives to us on matter: so the memory of a living being appears indeed to measure, above all, its powers of action upon things and to be only the intellectual reverberation of this power. Let us start, then, from this energy, as from the true principle: let us suppose that the body is a center of action, and only a center of action. We must see what consequences then result for perception, for memory, and for the relations between body and mind.

III. To take perception first. Here is my body with its "perceptive centers." These centers vibrate, and I have the representation of things. On the other hand, I have supposed that these vibrations can neither produce nor translate my perception. It is, then, outside them. Where is it? I cannot hesitate as to the answer: positing my body, I posit a certain image, but with it also the aggregate of the other images, since there is no material image which does not owe its qualities, its determinations, in short, its existence, to the place which it occupies in the totality of the universe. My perception can, then, only be some part of these objects them-

selves; it is in them rather than they in it. But what is it exactly within them? I see that my perception appears to follow all the vibratory detail of the so-called sensitive nerves; yet I know that the role of their vibrations is solely to prepare the reaction of my body on neighboring bodies, to sketch out my virtual actions. Perception, therefore, consists in detaching, from the totality of objects, the possible action of my body upon them. Perception appears, then, as only a choice. It creates nothing; its office, on the contrary, is to eliminate from the totality of images all those on which I can have no hold, and then, from each of those which I retain, all that does not concern the needs of the image which I call my body. Such, at least, much simplified, is the way we explain or describe schematically what we have called pure perception. Let us mark out at once the intermediate place which we thus take up between realism and idealism.

That every reality has a kinship, an analogy – in short, a relation with consciousness – this is what we concede to idealism by the very fact that we term things "images." No philosophical doctrine, moreover, provided that it is consistent with itself, can escape from this conclusion. But, if we could assemble all the states of consciousness, past, present and possible, of all conscious beings, we should still only have gathered a very small part of material reality because images outrun perception on every side. It is just these images that science and metaphysics seek to reconstitute, thus restoring the whole of a chain of which our perception grasps only a few links. But, in order thus to discover between perception and reality the relation of the part to the whole, it is necessary to leave to perception its true office, which is to prepare actions. This is what idealism fails to do. Why is it unable, as we said just now, to pass from the order manifested in perception to the order which is successful in science, that is to say, from the contingency with which our sensations appear to follow each other to the deter-

minism which binds together the phenomena of nature? Precisely because it attributes to consciousness, in perception, a speculative role, so that it is impossible to see what interest this consciousness has in allowing to escape, between two sensations, for instance, the intermediate links through which the second might be deduced from the first. These intermediaries and their strict order thus remain obscure, whether, with Mill, we make the intermediaries into "possible sensations," or, with Kant, hold the substructure of the order to be the work of an impersonal understanding. But suppose that my conscious perception has an entirely practical destination, simply indicating, in the aggregate of things, that which interests my possible action upon them: I can then understand that all the rest escapes me, and that, nevertheless, all the rest is of the same nature as what I perceive. My consciousness of matter is then no longer either subjective, as it is for English idealism, or relative, as it is for the Kantian idealism. It is not subjective, for it is in things rather than in me. It is not relative, because the relation between the "phenomenon" and the "thing" is not that of appearance to reality, but merely that of the part to the whole.

Here we seem to return to realism. But realism, unless corrected on an essential point, is as unacceptable as idealism and for the same reason. Idealism, we said, cannot pass from the order manifested in perception to the order which is successful in science, that is to say, to reality. Inversely, realism fails to draw from reality the immediate consciousness which we have of it. Taking the point of view of ordinary realism, we have, on the one hand, a composite matter made up of more or less independent parts, diffused throughout space, and, on the other hand, a mind which can have no point of contact with matter, unless it be, as materialists maintain, the unintelligible epiphenomenon. If we prefer the standpoint of the Kantian realism, we find between the "thing-in-

itself," that is to say, the real, and the "sensuous manifold" from which we construct our knowledge, no conceivable relation, no common measure. Now, if we get to the bottom of these two extreme forms of realism, we see that they converge toward the same point: both raise homogeneous space as a barrier between the intellect and things. The simpler realism makes of this space a *real* medium, in which things are in suspension; Kantian realism regards it as an *ideal* medium, in which the multiplicity of sensations is coordinated; but for both of them this medium is given *to begin with*, as the necessary condition of what comes to abide in it. And if we try to get to the bottom of this common hypothesis, in its turn, we find that it consists in attributing to homogeneous space a disinterested office: space is supposed either merely to uphold material reality or to have the function, still purely speculative, of furnishing sensations with means of coordinating themselves. So the obscurity of realism, like that of idealism, comes from the fact that, in both of them, our conscious perception and the conditions of our conscious perception are assumed to point to pure knowledge, not to action. But now suppose that this homogeneous space is not logically anterior, but posterior to material things and to the pure knowledge which we can have of them; suppose that extensity is prior to space; suppose that homogeneous space concerns our action and only our action, being like an infinitely fine network which we stretch beneath material continuity in order to render ourselves masters of it, to decompose it according to the plan of our activities and our needs. Then, not only has our hypothesis the advantage of bringing us into harmony with science, which shows us each thing exercising an influence on all the others and, consequently, occupying, in a certain sense, the whole of the extended (although we perceive of this thing only its center and mark its limits at the point where our body ceases to have any hold upon it). Not only has it the advantage, in

metaphysic, of suppressing or lessening the contradictions raised by divisibility in space — contradictions which always arise, as we have shown, from our failure to dissociate the two points of view, that of action from that of knowledge. It has, above all, the advantage of overthrowing the insurmountable barriers raised by realism between the extended world and our perception of it. For whereas this doctrine assumes, on the one hand, an external reality which is multiple and divided, and, on the other hand, sensations alien from extensity and without possible contact with it, we find that concrete extensity is not really divided, any more than immediate perception is in truth unextended. Starting from realism, we come back to the point to which idealism had led us; we replace perception in things. And we see realism and idealism ready to come to an understanding when we set aside the postulate, uncritically accepted by both, which served them as a common frontier.

To sum up: if we suppose an extended *continuum*, and, in this *continuum*, the center of real action which is represented by our body, its activity will appear to illuminate all those parts of matter with which at each successive moment it can deal. The same needs, the same power of action, which have delimited our body in matter, will also carve out distinct bodies in the surrounding medium. Everything will happen as if we allowed to filter through us that action of external things which is real, in order to arrest and retain that which is virtual: this virtual action of things upon our body and of our body upon things is our perception itself. But since the excitations which our body receives from surrounding bodies determine unceasingly, within its substance, nascent reactions — since these internal movements of the cerebral substance thus sketch out at every moment our possible action on things, the state of the brain exactly corresponds to the perception. It is neither its cause, nor its effect, nor in any sense its duplicate: it

merely continues it, the perception being our virtual action and the cerebral state our action already begun.

IV. But this theory of “pure perception” had to be both qualified and completed in regard to two points. For the so-called “pure” perception, which is like a fragment of reality, detached just as it is, would belong to a being unable to mingle with the perception of other bodies that of its own body, that is to say, its affections; nor would it be able to mingle with its intuition of the actual moment that of other moments, that is to say, its memory. In other words, we have, to begin with, and for the convenience of study, treated the living body as a mathematical point in space and conscious perception as a mathematical instant in time. We then had to restore to the body its extensity and to perception its duration. By this we restored to consciousness its two subjective elements, affectivity and memory.

What is an affection? Our perception, we said, indicates the possible action of our body on others. But our body, being extended, is capable of acting upon itself as well as upon other bodies. Into our perception, then, something of our body must enter. When we are dealing with external bodies, these are, by hypothesis, separated from ours by a space, greater or lesser, which measures the remoteness in time of their promise or of their menace: this is why our perception of these bodies indicates only possible actions. But the more the distance diminishes between these bodies and our own, the more the possible action tends to transform itself into a real action, the call for action becoming more urgent in the measure and proportion that the distance diminishes. And when this distance is *nil*, that is to say, when the body to be perceived is our own body, it is a real and no longer a virtual action that our perception sketches out. Such is, precisely, the nature of pain, an actual effort of the damaged part to set things to rights, an effort

that is local, isolated, and thereby condemned to failure, in an organism which can no longer act except as a whole. Pain is, therefore, in the place where it is felt, as the object is at the place where it is perceived. Between the affection felt and the image perceived there is this difference, that the affection is within our body, the image outside our body. And that is why the surface of our body, the common limit of this and of other bodies, is given to us in the form both of sensations and of an image.

In this interiority of affective sensation consists its subjectivity; in that exteriority of images in general, their objectivity. But here again we encounter the ever-recurring mistake with which we have been confronted throughout this work. It is supposed that perception and sensation exist for their own sake; the philosopher ascribes to them an entirely speculative function; and, as he has overlooked those real and virtual actions with which sensation and perception are bound up and by which, according as the action is virtual or real, perception and sensation are characterized and distinguished, he becomes unable to find any other difference between them than a difference of degree. Then, profiting by the fact that affective sensation is but vaguely localized (because the effort it involves is an indistinct effort) at once he declares it to be unextended, and these attenuated affections or unextended sensations he sets up as the material with which we are supposed to build up images in space. Thereby he condemns himself to an impossibility of explaining either whence arise the elements of consciousness, or sensations, which he sets up as so many absolutes, or how, unextended, they find their way to space and are coordinated there, or why, in it, they adopt a particular order rather than any other, or, finally, how they manage to make up an experience which is regular and common to all men. This experience, the necessary field of our activity, is, on the contrary, what we should start from. Pure perceptions, therefore, or images,

are what we should posit at the outset. And sensations, far from being the materials from which the image is wrought, will then appear as the impurity which is introduced into it, being that part of our own body which we project into all others.

V. But, as long as we confine ourselves to sensation and to pure perception, we can hardly be said to be dealing with the spirit. No doubt we demonstrate, in opposition to the theory of an epiphenomenal consciousness, that no cerebral state is the equivalent of a perception. No doubt the choice of perceptions from among images in general is the effect of a discernment which foreshadows spirit. No doubt also the material universe itself, defined as the totality of images, is a kind of consciousness, a consciousness in which everything compensates and neutralizes everything else, a consciousness of which all the potential parts, balancing each other by a reaction which is always equal to the action, reciprocally hinder each other from standing out. But to touch the reality of spirit we must place ourselves at the point where an individual consciousness, continuing and retaining the past in a present enriched by it, thus escapes the law of necessity, the law which ordains that the past shall ever follow itself in a present which merely repeats it in another form and that all things shall ever be flowing away. When we pass from pure perception to memory, we definitely abandon matter for spirit.

VI. The theory of memory, around which the whole of our work centers, must be both the theoretic consequence and the experimental verification of our theory of pure perception. That the cerebral states which accompany perception are neither its cause nor its duplicate, and that perception bears to its physiological counterpart the relation of a virtual action to an action begun — this we cannot substantiate by facts, since on our hypothesis every-

thing is bound to happen as if perception were a consequence of the state of the brain. For, in pure perception, the perceived object is a present object, a body which modifies our own. Its image is then actually given, and therefore, the facts permit us to say indifferently (though we are far from knowing our own meaning equally well in the two cases) that the cerebral modifications sketch the nascent reactions of our body or that they create in consciousness the duplicate of the present image. But with memory it is otherwise, for a remembrance is the representation of an *absent* object. Here the two hypotheses must have opposite consequences. If, in the case of a present object, a state of our body is thought sufficient to create the representation of the object, still more must it be thought so in the case of an object that is represented though absent. It is necessary, therefore, in this theory, that the remembrance should arise from the attenuated repetition of the cerebral phenomenon which occasioned the primary perception and should consist simply in a perception weakened. Therefore this double thesis: *Memory is only a function of the brain, and there is only a difference of intensity between perception and recollection.* If on the contrary, the cerebral state in no way begets our perception of the present object but merely continues it, it may also prolong and convert into action the recollection of it which we summon up, but it cannot give birth to that recollection. And as, on the other hand, our perception of the present object is something of that object itself, our representation of the absent object must be a phenomenon of quite another order than perception, since between presence and absence there are no degrees, no intermediate stages. Thus this double thesis, which is the opposite of the former: *memory is something other than a function of the brain, and there is not merely a difference of degree, but of kind, between perception and recollection.* The conflict between the two theories now takes an acute form, and this time experience can judge between them.

We will not here recapitulate in detail the proof we have tried to elaborate, but merely recall its essential points. All the arguments from fact, which may be invoked in favor of a probable accumulation of memories in the cortical substance, are drawn from localized disorders of memory. But, if recollections were really deposited in the brain, characteristic lesions of the brain would correspond to definite gaps in memory. Now, in those forms of amnesia in which a whole period of our past existence, for example, is abruptly and entirely obliterated from memory, we do not observe any precise cerebral lesion; on the contrary, in those disorders of memory where cerebral localization is distinct and certain, that is to say, in the different types of aphasia and in the diseases of visual or auditory recognition, we do not find that certain definite recollections are as it were torn from their seat, but it is the whole faculty of remembering that is more or less diminished *in vitality*, as if the subject had more or less difficulty in bringing his recollections into contact with the present situation. The mechanism of this contact was, therefore, what we had to study in order to ascertain whether the office of the brain is not rather to ensure its working than to imprison the recollections in cells.

We were thus led to follow through its windings the progressive movement by which past and present come into contact with each other, that is to say, the process of recognition. And we found, in fact, that the recognition of a present object might be effected in two absolutely different ways, but that in neither case did the brain act as a reservoir of images. Sometimes, by an entirely passive recognition, acted rather than thought, the body responds to a perception that recurs by a movement or attitude that has become automatic: in this case, everything is explained by the motor apparatus which habit has set up in the body, and lesions of the memory may result from the destruction of these mechanisms. Sometimes, on the other hand, recognition is actively produced by memory-

images which go out to meet the present perception; but then it is necessary that these recollections, at the moment that they overlie the perception, should be able to set going in the brain the same machinery that perception ordinarily sets to work in order to produce actions; if not foredoomed to impotence, they will have no tendency to become actual. And this is why, in all cases where a lesion of the brain attacks a certain category of recollections, the affected recollections do not resemble each other by all belonging to the same period, for instance, or by any logical relationship to each other, but simply in that they are all auditive or all visual or all motor. That which is damaged appears to be the various sensorial or motor areas, or, more often still, those appendages which permit of their being set going from within the cortex, rather than the recollections themselves. We even went further, and by an attentive study of the recognition of words and also of the phenomena of sensory aphasia, we endeavored to prove that recognition is in no way effected by a mechanical awakening of memories that are asleep in the brain. It implies, on the contrary, a more or less high degree of tension in consciousness, which goes to fetch pure recollections in pure memory in order to materialize them progressively by contact with the present perception.

But what is this pure memory and what are pure recollections? By the answer to this inquiry we completed the demonstration of our thesis. We had just established its first point, that is to say, that memory is something other than a function of the brain. We had still to show, by the analysis of "pure recollection," that there is not between recollection and perception a mere difference of degree but a radical difference of kind.

VII. Let us point out to begin with the metaphysical, and no longer merely psychological, bearing of this last problem. No doubt we have a thesis of pure psychology in a proposition such as this: rec-

ollection is a weakened perception. But let there be no mistake: if recollection is only a weakened perception, inversely, perception must be something like an intenser memory. Now the germ of English idealism is to be found here. This idealism consists in finding only a difference of degree, and not of kind, between the reality of the object perceived and the ideality of the object conceived. And the belief that we construct matter from our interior states and that perception is only a true hallucination, also arises from this thesis. It is this belief that we have always combated whenever we have treated of matter. Either, then, our conception of matter is false, or memory is radically distinct from perception.

We have thus transposed a metaphysical problem so as to make it coincide with a psychological problem which direct observation is able to solve. How does psychology solve it? If the memory of a perception were but this perception weakened, it might make us, for instance, take the perception of a slight sound for the recollection of a loud noise. Now such a confusion never occurs. But we may go further, and say that the consciousness of a recollection never occurs as an actual weak state which we try to relegate to the past so soon as we become aware of its weakness. How, indeed, unless we already possessed the representation of a past previously lived, could we relegate to it the less intense psychical states, when it would be so simple to set them alongside of strong states as a present experience which is confused, beside a present experience, which is clear? The truth is that memory does not consist in a regression from the present to the past, but, on the contrary, in a progression from the past to the present. It is in the past that we place ourselves at a stroke. We start from a "virtual state" which we lead onwards, step-by-step, through a series of different *planes of consciousness*, up to the goal where it is materialized in an actual perception; that is to say, up to the point where it becomes a present, active state — up to that extreme plane of our

consciousness against which our body stands out. In this virtual state, pure memory consists.

How is it that the testimony of consciousness on this point is misunderstood? How is it that we make of recollection a weakened perception, of which it is impossible to say either why we relegate it to the past, how we rediscover its date, or by what right it reappears at one moment rather than at another? We do so simply because we forget the practical end of all our actual psychical states. Perception is made into a disinterested work of the mind, a pure contemplation. Then, as pure recollection can evidently be only something of this kind (since it does not correspond to a present and urgent reality), memory and perception become states of the same nature, and between them no other difference than a difference of intensity can be found. But the truth is that our present should not be defined as that which is more intense: it is that which acts on us and which makes us act; it is sensory and it is motor — our present is, above all, the state of our body. Our past, on the contrary, is that which acts no longer but which might act, and will act by inserting itself into a present sensation from which it borrows the vitality. It is true that, from the moment when the recollection actualizes itself in this manner, it ceases to be a recollection and becomes once more a perception.

We understand then why a remembrance cannot be the result of a state of the brain. The state of the brain continues the remembrance; it gives it a hold on the present by the materiality which it confers upon it: but pure memory is a spiritual manifestation. With memory we are, in truth, in the domain of spirit.

VIII. It was not our task to explore this domain. Placed at the confluence of mind and matter, desirous chiefly of seeing the one flow into the other, we had only to retain, of the spontaneity of intellect, its place of conjunction with bodily mechanism. In this

way we were led to consider the phenomena of association and the birth of the simplest general ideas.

What is the cardinal error of associationism? It is to have set all recollections on the same plane, to have misunderstood the greater or lesser distance which separates them from the present bodily state, that is from action. Thus associationism is unable to explain either how the recollection clings to the perception which evokes it, or why association is effected by similarity or contiguity rather than in any other way, or, finally, by what caprice a particular recollection is chosen among the thousand others which similarity or contiguity might equally well attach to the present perception. This means that associationism has mixed and confounded all the different *planes of consciousness* and that it persists in regarding a less complete recollection as one that is less complex, whereas it is in reality a recollection less *dreamed*, more impersonal, nearer to action and, therefore, more capable of molding itself — like a ready-made garment — upon the new character of the present situation. The opponents of associationism have, moreover, followed it onto this ground. They combat the theory because it explains the higher operations of the mind by association, but not because it misunderstands the true nature of association itself. Yet this is the original vice of associationism.

Between the plane of action — the plane in which our body has condensed its past into motor habits — and the plane of pure memory, where our mind retains in all its details the picture of our past life, we believe that we can discover thousands of different planes of consciousness, a thousand integral and yet diverse repetitions of the whole of the experience through which we have lived. To complete a recollection by more personal details does not at all consist in mechanically juxtaposing other recollections to this, but in transporting ourselves to a wider plane of consciousness, in going away from action in the direction of dream. Neither

does the localizing of a recollection consist in inserting it mechanically among other memories, but in describing, by an increasing expansion of the memory as a whole, a circle large enough to include this detail from the past. These planes, moreover, are not given as ready-made things superposed the one on the other. Rather they exist virtually, with that existence which is proper to things of the spirit. The intellect, forever moving in the interval which separates them, unceasingly finds them again or creates them anew: the life of intellect consists in this very movement. Then we understand why the laws of association are similarity and contiguity rather than any other laws, and why memory chooses among recollections which are similar or contiguous certain images rather than other images, and, finally, how by the combined work of body and mind the earliest general ideas are formed. The interest of a living being lies in discovering in the present situation that which resembles a former situation, and then in placing alongside of that present situation what preceded and followed the previous one, in order to profit by past experience. Of all the associations which can be imagined, those of resemblance and contiguity are therefore at first the only associations that have a vital utility. But, in order to understand the mechanism of these associations and above all the apparently capricious selection which they make of memories, we must place ourselves alternately on the two extreme planes of consciousness which we have called the plane of action and the plane of dream. In the first are displayed only motor habits; these may be called associations which are acted or lived, rather than represented. Here resemblance and contiguity are fused together, for analogous external situations, as they recur, and have ended by connecting together certain bodily movements; thenceforth, the same automatic reaction, in which we unfold these contiguous movements, will also draw from the situation which occasions them its resemblance to former situations. But, as we pass from

movements to images and from poorer to richer images, resemblance and contiguity part company: they end by contrasting sharply with each other on that other extreme plane where no action is any longer affixed to the images. The choice of one resemblance among many, of one contiguity among others, is, therefore, not made at random: it depends on the ever-varying degree of the *tension* of memory, which, according to its tendency to insert itself in the present act or to withdraw from it, transposes itself as a whole from one key into another. And this double movement of memory between its two extreme limits also sketches out, as we have shown, the first general ideas – motor habits ascending to seek similar images, in order to extract resemblances from them, and similar images coming down toward motor habits, to fuse themselves, for instance, in the automatic utterance of the word which makes them one. The nascent generality of the idea consists, then, in a certain activity of the mind, in a *movement* between action and representation. And this is why, as we have said, it will always be easy for a certain philosophy to localize the general idea at one of the two extremities, to make it crystallize into words or evaporate into memories, whereas it really consists in the transit of the mind as it passes from one term to the other.

IX. By representing elementary mental activity in this manner to ourselves, and by thus making of our body and all that surrounds it the pointed end ever moving, ever driven into the future by the weight of our past, we were able to confirm and illustrate what we had said of the function of the body, and at the same time to prepare the way for an approximation of body and mind.

For after having successively studied pure perception and pure memory, we still had to bring them together. If pure recollection is already spirit, and if pure perception is still in a sense matter, we ought to be able, by placing ourselves at their meeting place,

to throw some light on the reciprocal action of spirit and matter. "Pure," that is to say, instantaneous, perception is, in fact, only an ideal, an extreme. Every perception fills a certain depth of duration, prolongs the past into the present, and thereby partakes of memory. So that if we take perception, in its concrete form, as a synthesis of pure memory and pure perception, that is to say, of mind and matter, we compress within its narrowest limits the problem of the union of soul and body. This is the attempt we have made especially in the latter part of this essay.

The opposition of the two principles, in dualism in general, resolves itself into the threefold opposition of the inextended and the extended, quality and quantity, freedom and necessity. If our conception of the function of the body, if our analyses of pure perception and pure memory, are destined to throw light on any aspect of the correlation of body and mind, it can only be on condition of suppressing or toning down these three oppositions. We will, then, examine them in turn, presenting here in a more metaphysical form the conclusions which we have made a point of drawing from psychology alone.

First. If we imagine on the one hand the extended really divided into corpuscles, for example, and, on the other hand, a consciousness with sensations, in themselves inextensive, which come to project themselves into space, we shall evidently find nothing common in such matter and such a consciousness to body and mind. But this opposition between perception and matter is the artificial work of an understanding which decomposes and recomposes according to its habits or its laws: it is not given in immediate intuition. What is given are not inextensive sensations: how should they find their way back to space, choose a locality within it, and coordinate themselves there so as to build up an experience that is common to all men? And what is real is not extension, divided into independent parts: how, being deprived of all possible rela-

tionship to our consciousness, could it unfold a series of changes of which the relations and the order exactly correspond to the relations and the order of our representations? That which is given, that which is real, is something intermediate between divided extension and pure inextension. It is what we have termed the *extensive*. Extensivity is the most salient quality of perception. It is in consolidating and in subdividing it by means of an abstract space, stretched by us beneath it for the needs of action, that we constitute the composite and infinitely divisible extension. But it is in subtilizing it, in making it, in turn, dissolve into affective sensations and evaporate into a counterfeit of pure ideas, that we obtain those inextensive sensations with which we afterwards vainly endeavor to reconstitute images. And the two opposite directions in which we pursue this double labor open quite naturally before us because it is a result of the very necessities of action that extension should divide itself up for us into absolutely independent objects (whence an encouragement to go on subdividing extension) and that we should pass by insensible degrees from affection to perception (whence a tendency to suppose perception more and more inextensive). But our understanding, of which the function is to set up logical distinctions, and, consequently, clean-cut oppositions, throws itself into each of these ways in turn and follows each to the end. It thus sets up, at one extremity, an infinitely divisible extension and at the other, sensations which are absolutely inextensive. And it creates thereby the opposition which it afterwards contemplates amazed.

Second. Far less artificial is the opposition between quality and quantity, that is to say, between consciousness and movement: but this opposition is radical only if we have already accepted the other. For if you suppose that the qualities of things are nothing but inextensive sensations affecting a consciousness, so that these qualities represent merely, as so many symbols, homogeneous and cal-

culable changes going on in space, you must imagine between these sensations and these changes an incomprehensible correspondence. On the contrary, as soon as you give up establishing between them a priori this factitious contrariety, you see the barriers which seemed to separate them fall one after another. First, it is not true that consciousness, turned round on itself, is confronted with a merely internal procession of inextensive perceptions. It is inside the very things perceived that you put back pure perception, and the first obstacle is thus removed. You are confronted with a second obstacle, it is true: the homogeneous and calculable changes on which science works seem to belong to multiple and independent elements, such as atoms, of which these changes appear as mere accidents, and this multiplicity comes in between the perception and its object. But if the division of the extended is purely relative to our possible action upon it, the idea of independent corpuscles is a fortiori schematic and provisional. Science itself, moreover, allows us to discard it, and so the second barrier falls. A last barrier remains to be jumped over: that which separates the heterogeneity of qualities from the apparent homogeneity of movements that are extended. But, just because we have set aside the elements, atoms or whatnot, to which these movements had been affixed, we are no longer dealing with that movement which is the accident of a moving body, with that abstract motion which the mechanician studies and which is nothing, at bottom, but the common measure of concrete movements. How could this abstract motion, which becomes immobility when we alter our point of reference, be the basis of real changes, that is, of changes that are felt? How, composed as it is of a series of instantaneous positions, could it fill a duration of which the parts go over and merge each into the others? Only one hypothesis, then, remains possible; namely, that concrete movement, capable, like consciousness, of prolonging its past into its present, capable, by repeating itself, of engender-

ing sensible qualities, already possesses something akin to consciousness, something akin to sensation. On this theory, it might be this same sensation diluted, spread out over an infinitely larger number of moments, this same sensation quivering, as we have said, like a chrysalis within its envelope. Then a last point would remain to be cleared up: how is the contraction effected — the contraction no longer of homogeneous movements into distinct qualities, but of changes that are less heterogeneous into changes that are more heterogeneous? But this question is answered by our analysis of concrete perception: this perception, the living synthesis of pure perception and pure memory, necessarily sums up in its apparent simplicity of moments. Between sensible qualities, as regarded in our representation of them, and these same qualities treated as calculable changes, there is therefore only a difference in rhythm of duration, a difference of internal tension. Thus, by the idea of *tension* we have striven to overcome the opposition between quality and quantity, as, by the idea of *extension*, that between the inextended and the extended. Extension and tension admit of degrees, multiple but always determined. The function of the understanding is to detach from these two genera, extension and tension, their empty container, that is to say, homogeneous space and pure quantity, and thereby to substitute, for supple realities which permit of degrees, rigid abstractions born of the needs of action, which can only be taken or left — to create thus, for reflective thought, dilemmas of which neither alternative is accepted by reality.

Third. But if we regard in this way the relations of the extended to the inextended, of quality to quantity, we shall have less difficulty in comprehending the third and last opposition, that of freedom and necessity. Absolute necessity would be represented by a perfect equivalence of the successive moments of duration, each-to-each. Is it so with the duration of the material universe? Can

each moment be mathematically deduced from the preceding moment? We have throughout this work, and for the convenience of study, supposed that it was really so; and such is, in fact, the distance between the rhythm of our duration and that of the flow of things, that the contingency of the course of nature, so profoundly studied in recent philosophy, must, for us, be practically equivalent to necessity. So let us keep to our hypothesis, though it might have to be attenuated. Even so, freedom is not in nature an *imperium in imperio*. We have said that this nature might be regarded as a neutralized and consequently, a latent consciousness, a consciousness of which the eventual manifestations hold each other reciprocally in check, and annul each other precisely at the moment when they might appear. The first gleams which are thrown upon it by an individual consciousness do not therefore shine on it with an unheralded light: this consciousness does but remove an obstacle; it extracts from the whole that is real a part that is virtual, chooses and finally disengages that which interests it; and although, by that intelligent choice, it indeed manifests that it owes to spirit its form, it assuredly takes from nature its matter. Moreover, while we watch the birth of that consciousness we are confronted, at the same time, by the apparition of living bodies, capable, even in their simplest forms, of spontaneous and unforeseen movements. The progress of living matter consists in a differentiation of function which leads first to the production and then to the increasing complication of a nervous system capable of canalizing excitations and of organizing actions: the more the higher centers develop, the more numerous become the motor paths among which the same excitation allows the living being to choose, in order that it may act. An ever greater latitude left to movement in space – this indeed is what is seen. What is not seen is the growing and accompanying tension of consciousness in time. Not only, by its memory of former experience, does

this consciousness retain the past better and better, so as to organize it with the present in a newer and richer decision; but, living with an intenser life, contracting, by its memory of the immediate experience, a growing number of external moments in its present duration, it becomes more capable of creating acts of which the inner indetermination, spread over as large a multiplicity of the moments of matter as you please, will pass the more easily through the meshes of necessity. Thus, whether we consider it in time or in space, freedom always seems to have its roots deep in necessity and to be intimately organized with it. Spirit borrows from matter the perceptions on which it feeds and restores them to matter in the form of movements which it has stamped with its own freedom.

Notes

INTRODUCTION

1. We have laid stress on this particular point in an essay on "Le paralogisme psycho-physiologique," *Revue de Métaphysique et de Morale* (Nov., 1904).
2. F. Moutier, *L'Aphasie de Broca*, Paris, 1908; especially Chapter VII. Cf. the work of Professor Pierre Marie.
3. P. Janet, *Les Obsessions et la psychasthénie*, Paris, 1903; in particular, pp. 474-502.

CHAPTER I

1. The word representation is used throughout this book in the French sense, as meaning a mental picture, which mental picture is very often perception. (Translators' note.)
2. Lotze, *Metaphysic*, Oxford, 1887, vol. ii, p. 206.
3. Schwarz, *Das Wahrnehmungsproblem*, Leipzig, 1892, pp. 313ff.
4. The word "spiritualism" is used throughout this work to signify any philosophy that claims for spirit an existence of its own. (Translators' note.)

CHAPTER II

1. Robertson, "Reflex Speech," *Journal of Mental Science* (April, 1888). Cf. the article by Ch. Féré, "Le langage réflexe," *Revue Philosophique* (Jan., 1896).
2. Oppenheim, "Ueber das Verhalten der musikalischen Ausdrucksbewegungen bei Aphatischen," *Charité Annalen*, xiii (1888) pp. 348ff.

3. Ibid., p. 365.
4. See, on the subject of this sense of error, the article by Müller and Schumann, "Experimentelle Beiträge zur Untersuchung des Gedächtnisses," *Zeitschr. f. Psych. u. Phys. der Sinnesorgane* (Dec., 1893), p. 305.
5. W.G. Smith, "The Relation of Attention to Memory," *Mind* (Jan., 1895).
6. Ibid., p. 23.
7. Something of this nature appears to take place in that affection which German authors call *Dyslexie*. The patient reads the first words of a sentence correctly, and then stops abruptly, unable to go on, as though the movements of articulation had inhibited memory. See, on the subject of dyslexie: Berlin, *Eine besondere Art der Wortblindheit (Dyslexie)*, Weisbaden, 1887, and Sommer, "Die Dyslexie als funktionelle Störung," *Arch. f. Psychiatrie* (1893). We may also compare with these phenomena the remarkable cases of word deafness in which the patient understands the speech of others, but no longer understands his own. (See examples cited by Bateman, *On Aphasia*, p. 200; by Bernard, *De l'aphasie*, Paris, 1889, pp. 143 and 144; and by Broadbent, "Case of Peculiar Affection of Speech," *Brain* [1878-79], pp. 484ff.)
8. Mortimer Granville, "Ways of Remembering," *Lancet*, Sept. 27, 1899, p. 458.
9. Kay, *Memory and How to Improve It*, New York, 1888.
10. See the systematic treatment of this thesis, supported by experiments, in Lehmann's articles, "Ueber Wiedererkennen," *Philos. Studien Wundt*, vol. v, pp. 96ff. and vol. vii, pp. 169ff.
11. Pillon, "La formation des idées abstraites et générales," *Crit. Philos.* (1885), vol. i, pp. 208ff. Cf. Ward, "Assimilation and Association," *Mind* (July, 1893 and Oct., 1894).
12. Brochard, "La loi de similarité," *Revue Philosophique*, vol. ix (1880), p. 258. M. Rabier shows himself also of this opinion in his "Leçons de philosophie," *Psychologie*, vol. i, pp. 187-92.
13. Pillon, "La formation des idées abstraites et générales," p. 207. Cf. James Scully, *The Human Mind*, vol. i, London, 1892, p. 331.
14. Höffding, "Ueber Wiedererkennen, Association und psychische Activität," *Vierteljahresschrift f. wissenschaftliche Philosophie* (1889), p. 433.

15. Munk, *Ueber die Functionen der Grosshirnrinde*, Berlin, 1881, pp. 108ff.
16. *Die Seelenblindheit als Herderscheinung*, Wiesbaden, 1887, p. 56.
17. "Ein Beitrag zur Kenntniss der Seelenblindheit," *Arch. f. Psychiatrie*, vol. xxiv (1892).
18. "Ein Fall von Seelenblindheit," *Arch. f. Psychiatrie* (1889).
19. Reported by Bernard, "Un cas de suppression brusque et isolée de la vision mentale," *Progrès Médical*, July 21, 1883.
20. Kussmaul, *Die Störungen der Sprache*, Leipzig, 1877, p. 181. Allen Starr, "Apraxia and Aphasia," *Medical Record*, Oct. 27, 1888. Cf. Laquer, "Zur Localisation der Sensorischen Aphasie," *Neurolog. Centralblatt*, June 15, 1888; and Dodds, "On Some Central Affections of Visions," *Brain* (1885).
21. "Les mouvements et leur importance psychologique," *Revue Philosophique*, vol. viii (1879), pp. 271ff. Cf. *Psychologie de l'attention*, Paris, 1889, p. 75.
22. *Physiology of Mind*, pp. 206ff.
23. In one of the most ingenious chapters of his *Psychologie*, vol. i, p. 242, Paris, 1893, Fouillée says that the sense of familiarity is largely due to the diminution of the inward *shock* which constitutes surprise.
24. *Arch. f. Psychiatrie* (1889-90), p. 224. Cf. Wilbrand, p. 140; and Bernhardt, "Eigenthümlicher Fall von Hirnerkrankung," *Berliner klinische Wochenschrift* (1877), p. 581.
25. *Arch. f. Psychiatrie*, vol. xxiv, p. 898.
26. *Arch. f. Psychiatrie* (1889-90), p. 233.
27. Marillier, "Remarques sur le mécanisme de l'attention," *Revue Philosophique*, vol. xxvii (1889). Cf. Ward, art. "Psychology" in the *Encyclopaedia Britannica*; and Bradley, "Is There a Special Activity of Attention?" *Mind*, vol. xi (1886) p. 305.
28. Hamilton, *Lectures on Metaphysics*, vol. i, p. 247.
29. Wundt, "Grundzüge der physiologischen," *Psychologie*, vol. iii, pp. 331ff.
30. Maudsley, *Physiology of Mind*, p. 299. Cf. Bastian, "Les processus nerveux dans l'attention," *Revue Philosophique*, vol. xxxiii, pp. 360ff.
31. W. James, *Principles of Psychology*, vol. i, p. 441.
32. *Psychologie de l'attention*, Paris, 1889.

33. Marillier, op. cit. Cf. J. Sully, "The Psycho-physical Process in Attention," *Brain* (1890) p. 154.
34. N. Lange, "Beitr. zur Theorie der Sinnlichen Aufmerksamkeit," *Philos. Studien Wundt*, vol. vii, pp. 390-422.
35. *Beiträge zur Experimentellen Psychologie*, vol. iv, pp. 15ff.
36. *Grundriss der Psychologie*, Leipzig, 1893, p. 185.
37. "Zur Physiologie und Pathologie des Lesens," *Zeitschr. f. Klinische Medicin* (1893). Cf. McKeen Cattell, "Ueber die Zeit der Erkennung von Schriftzeichen" *Philos. Studien* (1885-86).
38. "Ueber Aphasie und ihre Beziehungen zur Wahrnehmungen," *Arch. f. Psychiatrie* vol. xvi (1880).
39. Lichtheim, "On Aphasia," *Brain* (Jan., 1885), p. 447.
40. *Ibid.*, p. 454.
41. Bastian, "On Different Kinds of Aphasia," *British Medical Journal* (Oct. and Nov., 1887) p. 935.
42. Romberg, *Lehrbuch der Nervenkrankheiten*, vol. ii (1853).
43. Quoted by Bateman, *On Aphasia*, London, 1890, p. 79. Cf. Marcé, "Mémoire sur quelques observations de physiologie pathologique," *Mém. de la Soc. de Biologie*, 2nd series, vol. ii, p. 102.
44. Forbes Winslow, *On Obscure Diseases of the Brain*, London, 1861, p. 505.
45. Kussmaul, *Die Störungen der Sprache*, Leipzig, 1877, pp. 55ff.
46. Arnaud, "Contribution à l'étude clinique de la surdité verbale," *Arch. de Neurologie* (1886), p. 192. Spamer, "Ueber Asymbolie," *Arch. f. Psychiatrie*, vol. vi, pp. 507 and 524.
47. See, in particular: P. Sérieux, "Sur un cas de surdité verbale pure," *Revue de Médecine*, 1893; pp. 733ff. Lichtheim, loc. cit.; p. 461; and Arnaud, "Contrib. à l'étude de la surdité verbale (2^e article)," *Arch. de Neurologie* (1886), p. 366.
48. Adler, "Beitrag zur Kenntniss der seltneren Formen von sensorischer Aphasie," *Neurol. Centralblatt*, (1891), pp. 296ff.
49. Bernard, *De l'Aphasie*, Paris, 1889, p. 143.
50. Ballet, *Le Langage intérieur*, Paris, 1888, p. 85.
51. See the three cases cited by Arnaud in the *Archives de Neurologie* (1886).

- pp. 366ff. ("Contrib. clinique à l'étude de la surdité verbale," 2nd article). Cf. Schmidt's case, "Gehors- und Sprachstörung in Folge von Apoplexie," *Allg. Zeitschriften f. Psychiatrie* vol. xxvii (1871), p. 304.
52. Stricker, *Studien über die Sprachvorstellung*, Vienna, 1880.
53. Bernard, pp. 172 and 179. Cf. Babilée, *Les Troubles de la mémoire dans l'alcoolisme*, Paris, 1886 (medical thesis), p. 44.
54. Rieger, *Beschreibung der Intelligenzstörungen in Folge einer Hirnverletzung*, Wurzburg, 1889, p. 35.
55. Wernicke, *Der aphasische Symptomencomplex*. Breslau, 1874, p. 39. Cf. Valentin, "Sur un cas d'aphasie d'origine traumatique," *Revue Médicale de l'Est*, (1880), p. 171.
56. Ribot, *Les Maladies de la mémoire*, Paris 1881, pp. 131ff.
57. Forbes Winslow, *On Obscure Diseases of the Brain*, London, 1861.
58. *Ibid.*, p. 372.
59. Pierre Janet, *Etat mental des hystériques*, vol. ii, Paris, 1894, pp. 263ff. Cf. *L'Automatisme psychologique*, Paris 1889, by the same author.
60. See Grashey's case, studied afresh by Sommer, and by him declared to be inexplicable according to the existing theories of aphasia. In this instance, the movements executed by the patient seem to me to have been *signals* addressed by him to an independent memory. (Sommer, "Zur Psychologie der Sprache," *Zeitschr. f. Psychol. u. Physiol. der Sinnesorgane*, vol. ii, (1891), pp. 143ff. Cf. Sommer's paper at the Congress of German Alienists, *Arch. de Neurologie*, vol. xxiv, (1892).
61. Wundt, *Grundzüge der physiologische Psychologie*, vol. i, Leipzig, 1903, pp. 314-15.
62. Bernard, *De l'Aphasie*, Paris, 1889, pp. 171 and 174.
63. Graves cites the case of a patient who had forgotten all names but remembered their initial, and by that means was able to recover them (quoted by Bernard, *De l'Aphasie*, p. 179).
64. Bernard, *De l'Aphasie*, p. 37.
65. Broadbent, "A Case of Peculiar Affection of Speech," *Brain* (1879), p. 494.
66. Kussmaul, *Die Störungen der Sprache*, p. 182.
67. Lichtheim, "On Aphasia," *Brain* (1885). Yet we must note the fact that Wernicke, the first to study sensory aphasia methodically, was able to do without a center for concepts (*Der aphasische Symptomencomplex*, Breslau, 1874).

68. Bastian, "On Different Kinds of Aphasia," *Brit. Med. Journal* (1887). Cf. the explanation (indicated as merely possible) of *optical aphasia* by Bernheim: "De la cécité psychique des choses," *Revue de Médecine* (1885).
69. Wysman, "Aphasie und verwandte Zustände," *Deutsches Archiv für Klinische Medizin* (1880). Magnan had already opened the way, as Skwortzoff's diagram indicates, "De la cécité des mots," *Th. de Med.* (1881), p. i.
70. Moeli, "Ueber Aphasie bei Wahrnehmung der Gegenstände durch das Gesicht," *Berliner Klinische Wochenschrift*, Apr. 28, 1890.
71. Freud, *Zur Auffassung der Aphasien*, Leipzig, 1891.
72. Sommer, "Addressing a Congress of Alienists," *Arch. de Neurologie*, vol. xxiv (1892).
73. *The Senses and the Intellect*, p. 329. Cf. Spencer, *Principles of Psychology*, vol. i., p. 456.
74. Ribot, *Les Maladies de la mémoire*, Paris, 1881, p. 10.
75. See an enumeration of the most typical cases in Shaw's article, "The Sensory Side of Aphasia," *Brain* (1893), p. 501. Several authors, however, limit to the first convolution the lesion corresponding to the loss of verbal auditory images. See, in particular, Ballet, *Le Langage intérieur*, p. 153.
76. Luciani, quoted by J. Soury, *Les Fonctions du cerveau*, Paris, 1892, p. 211.
77. The theory which is here sketched out resembles, in one respect, that of Wundt. We will give the common element and the essential difference between them. With Wundt, we believe that distinct perception implies a centrifugal action; thereby we are led to suppose with him (although in a slightly different sense) that the so-called image centers are rather centers for the grouping of sense-impressions. But whereas, according to Wundt, the centrifugal action lies in an "apperceptive stimulation," the nature of which can only be defined in a general manner, and which appears to correspond to what is commonly called the fixing of the attention, we maintain that this centrifugal action bears in each case a distinct form, the very form of that "virtual object" which tends to actualize itself by successive stages. Hence an important difference in our understanding of the office of the centers. Wundt is led to assume: First, a general organ of apperception, occupying the frontal lobe; Second, particular centers which, though

most likely incapable of storing images, retain nevertheless a tendency or a disposition to reproduce them. Our contention, on the contrary, is that no trace of an image can remain in the substance of the brain, and that no such center of apperception can exist. Instead, there are merely, in that substance, organs of *virtual* perception, influenced by the intention of the memory, as there are at the periphery organs of *real* perception, influenced by the action of the object. (See *Grundzüge der physiologische Psychologie*, vol. i, pp. 320-27).

CHAPTER III

1. Kay, *Memory and How to Improve It*, p. 18.
2. Mathias Duval, "Théorie histologique du sommeil," *C. R. de la Soc. de Biologie* (1895), p. 74. Cf. Lépine, *ibid.*, p. 85; and *Revue de Médecine* (Aug., 1894); and, especially, Pupin, *Le Neurone et les hypothèses histologiques*, Paris, 1896.
3. Forbes Winslow, *Obscure Diseases of the Brain*, pp. 25ff.; Ribot, *Maladies de la mémoire*, pp. 139ff.; Mauro, *Le Sommeil et les rêves*, Paris, 1878, p. 439; Egger, "Le Moi des mourants," *Revue philosophique* (Jan. and Oct., 1896). Cf. Ball's dictum: "Memory is a faculty which loses nothing and records everything." (Quoted by Rouillard, *Les Amnésies* [medical thesis], Paris, 1885, p. 25.)
4. This idea has recently been developed by various authors. A systematic account of it will be found in the work of Cowles, "The Mechanism of Insanity," *American Journal of Insanity* (1890-91).
5. See, especially, Moreau de Tours, *Du Haschisch*, Paris, 1845.
6. Ball, *Leçons sur les maladies mentales*, Paris, 1890, pp. 608ff. Cf. a curious analysis: "Visions, a Personal Narrative," *Journal of Mental Science* (1896), p. 284.
7. See "Visions," p. 176.
8. Pierre Janet, *Les Accidents mentaux*, Paris, 1894, pp. 292ff.
9. Pierre Janet, *L'Automatisme psychologique*, Paris, 1898, pp. 95ff.
10. Ravaisson, *La Philosophie en France au XIX siècle*, 3rd ed., p. 176.

CHAPTER IV

1. H. Bergson, *Time and Free Will*, Sonnenschein 1910. Translation of *Les Données immédiates de la conscience*.

2. We may here briefly recall this argument. Let there be a moving body which is displaced with a certain velocity, and which passes simultaneously before two bodies, one at rest and the other moving toward it with the same velocity as its own. During the same time that it passes a certain length of the first body, it naturally passes double that length of the other. Whence Zeno concludes that "a duration is the double of itself." A childish argument, it is said, because Zeno takes no account of the fact that the velocity is in the one case double that which it is in the other. Certainly, but how, I ask, could he be aware of this? That, in the same time, a moving body passes different lengths of two bodies, of which one is at rest and the other in motion, is clear for him who makes of duration a kind of absolute and places it either in consciousness or in something which partakes of consciousness. For while a *determined* portion of this absolute or conscious duration elapses, the same moving body will traverse, as it passes the two bodies, two spaces of which the one is the double of the other, without our being able to conclude from this that a duration is double itself, since duration remains independent of both spaces. But Zeno's error, in all his reasoning, is due to just this fact, that he leaves real duration on one side and considers only its objective track in space. How, then, should the two lines traced by the same moving body not merit an equal consideration, qua measures of duration? And how should they not represent the same duration, even though the one is twice the other? In concluding from this that "a duration is the double of itself," Zeno was true to the logic of his hypothesis, and his fourth argument is worth exactly as much as the three others.

3. Descartes, *Principes*, ii, 29.

4. *Principes*, part ii, § 37.

5. Leibniz, "Specimen dynamicum" *Mathem. Schriften*, Gerhardt, 2nd section, vol. ii. p. 246.

6. H. Morus, *Scripta Philosophica*, 1679, vol. ii, p. 248.

7. Newton, *Principia*, Thomson, ed, 1871, pp. 6ff.

8. Euler, *Theoria motus corporum solidorum*, 1765, pp. 30-33.

9. Newton, in particular.

10. See, on this subject, Clerk-Maxwell, "Action at a Distance," in *Scientific Papers*,

Cambridge, 1890, vol. ii, pp. 313-14.

11. Clerk-Maxwell, "Molecular Constitution of Bodies," in *Scientific Papers*, vol. ii. p. 618. Van der Waals has shown, on the other hand, the continuity of liquid and gaseous states.

12. Faraday, "A Speculation Concerning Electric Conduction," *Philos. Magazine*, 3rd series. vol. xxiv.

13. Thomson, "On Vortex Atoms," *Proc. of the Roy. Soc. of Edin.* (1867). An hypothesis of the same nature had been put forward by Graham, "On the Molecular Mobility of Gases," *Proc. of the Roy. Soc.* (1863), pp. 621ff.

14. Bergson, *Time and Free Will*.

15. Bergson, *Time and Free Will*.

16. Bergson, *Time and Free Will*.

17. See on this subject; Paul Janet, "La perception visuelle de la distance," *Revue philosophique*, vol. vii (1879), pp. 1ff.; William James, *Principles of Psychology*, vol. ii, chap. xxii. Cf. on the subject of the visual perception of extensity: Dunan, "L'espace visuel et l'espace tactile," *Revue Philosophique* (Feb. and Apr., 1888, Jan., 1889).

18. Ward, Art. "Psychology" in the *Encycl. Britannica*.

19. W. James, *Principles of Psychology*, vol. ii, pp. 134ff. We may note in passing that we might, in strictness, attribute this opinion to Kant, since *The Transcendental Aesthetic* allows no difference between the data of the different senses as far as their extension in space is concerned. But it must not be forgotten that the point of view of the *Critique* is other than that of psychology, and that it is enough for its purpose that all our sensations should *end* by being localized in space when perception has reached its final form.

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Compiled by Bruno Paradis

The purpose of this bibliography is threefold: (1) to recall the dates of the original French publication of Bergson's works and to list the available English language translations; (2) to provide a selection of general commentaries as well as critical studies (all texts which specifically address *Matter and Memory* are marked by an asterisk); and (3) to allow for the possibility of dialogue, with a special focus on the question of time, between Bergson and great thinkers in the philosophical tradition, and between Bergson and important trends in contemporary science.

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