

THE NATURE AND HABITAT OF MIND

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Any organized body of knowledge, whether in science or in philosophy—if one may suppose for the moment that somewhere, in some philosophy there is valid knowledge—exhibits the presence of two components. There are first, diverse items, data or facts, and secondly, there is some one or more principle of selection, arrangement, and organization by virtue of which the various facts fall into some sort of system. In saying this I make no assumption as to the metaphysical or existential status of the particular facts and events which are assembled in an organized body of knowledge, or of the principles of organization and relationship which define the nature of the enveloping structure. This distinction between form and matter—for such it is ('matter' taken in the Greek and not in the modern sense)—applies equally to a thoroughgoing realism according to which the categories are supposed to be just as independent of any constructive mental processes as are the perceived facts and events of nature, and to an idealism or pragmatism which regards mind or minds as actively engaged in organizing and reorganizing the stuff of experience. Any organized assemblage of items, a crystal, an animal body, the books in one's library, statistical weather observations arranged and interpreted in a treatise on Meteorology, a metaphysical system of the universe, all these are comprised of a variety of particular facts, events, and aspects, selected and arranged in a certain way.

But there appears to be a difference between science and philosophy with respect to the relative part played by observable data on the one hand, and organizing, form-giving principles

on the other hand. These latter admit in science of a wider acceptance; they command an allegiance more universal and widespread, even if more tacit, among scientists than is the case among philosophers with respect to the formative principles which guide their selection of and their reflection upon the facts of experience. For, even in those growing and critical periods of science when rival hypotheses of wide scope and generality are contending for mastery—an emission or undulatory theory of light, a nebula or planetesimal hypothesis concerning the origin of the solar system—a decision is effected by an appeal to a body of facts recognized in common by everyone as belonging to the universe of discourse of the science in question. And within this universe of discourse there are recognized wider and more inclusive categories than those with which the specific contending theories are concerned. It is this common recognition which, in science, makes ultimate agreement possible. The continuity of events in space and time (or spaces and times), the conservation of mass and energy, stand for beliefs which are the common property of the advocates of competing hypotheses and theories in the physical sciences. But philosophers fail to agree both as to the universe of discourse within which they are to draw their facts, and also as to the commanding principles which determine or at any rate color their interpretation of these facts. Experience seems to show the extraordinary difficulty of framing a philosophical question so unambiguously that, by means of a patient and detailed analysis of some situation present to experience, a common agreement may be reached. Do the neurone fibers touch one another or are there synapses in the brain tissue, is a question that can be settled by an appeal to the facts. But the question whether sense data are physical or mental continues to be discussed because, among other things at least, philosophers cannot agree to the meaning of the terms 'physical' and 'mental,' and their disagreement arises from the conflict between fundamental organizing ideas, habits of thought, and selective interests which determine the connotation and

the denotation of the terms 'physical' and 'mental.' Every philosophy seizes upon what it supposes to be some deep and characteristic motive or idea of the universe or of experience, and it erects this motive or idea into a principle of organization and of interpretation in accordance with which large and varied tracts of experience may be seen in a single perspective. I am drawing no moral from this unless it be that, in Santayana's words, "it would be well for us, since we must be biassed and fragmentary, to cultivate as many different ways as possible of depicting the universe," or in Whitehead's injunction, "seek simplicity and distrust it." I should not think it necessary or wise to say that the strife of philosophical ideas is a mere echo of conflicting temperaments and subjective interests. It is rather a rivalry between concepts, each of which is a selective and organizing principle, chosen both because it represents a real aspect or grain of the world, and also because it makes some appeal to the philosophical imagination. Philosophy is certainly not poetry, but I do not think we are entitled to say either that it is science, or that it should aim to be quite the same sort of thing as science.

These preliminary remarks are intended to explain and to justify the plan which I shall follow in this paper. I am to discuss the nature of mind, and the kind of world in which mind lives, its habitat. If I were a zoologist, and were to undertake, say, to describe the structure of the earthworm *Allolobophora* and the nature of its habitat I should, I suppose, through diagrams and scientific description report to you concerning a specific field of facts and processes which all of you would recognize as relevant to the task in hand. But unfortunately, in describing mind and its habitat, the procedure is much less certain and direct, not so much because mind is, or is thought to be, something non-physical, but because the region of facts to which you appeal—and you can appeal to nothing else—depends upon your choice and your use of large and often vague directive and formative ideas. The behaviorist and introspec-

tionist, the realist, idealist, and pragmatist, do not report the same things about mind and its habitat because the organizing principles leading to their selection, description, and interpretation of facts are different. And if the organizing principle, the particular bias of a philosopher, is challenged he will probably appeal for its vindication to the very body of facts, the specific universe of discourse, which is defined by the principle in question, and he then wonders why other philosophers do not agree with him. Instead, then, of trying to bring before you a mind within a habitat and asking you to see what they both are, I propose first to consider a certain pregnant and directive organizing principle by means of which many philosophers believe that they can discover and articulate the nature and habitat of mind.

This principle is a formative idea which is confined to no one type of philosophical doctrine as types are commonly labeled; it cuts across otherwise quite diverse philosophical structures. The motive in question is that of envisaging reality, so far as the problem of mind is concerned, as the scene in which the life processes of organized bodies are engaged in an active commerce and intercourse with the objects and events which constitute their effective environment. What we call mind is to be defined and interpreted in terms of such a togetherness, contact, and mutual interaction of animal bodies, and the physical objects and events comprised within their physical environment. Here is an intellectual framework which, on the part of thinkers who adopt it, provides a mold in which every question concerning the nature and habitat of mind is framed, and which predetermines the outlines, at least, of an answer to such questions. There are at least three powerful motives which have contributed to the adoption of this guiding framework and principle. If, as Burnet has suggested, an alternation of the mathematical or analytic and the biological interest is characteristic of the entire development both of scientific thought and of philosophy, then it may be said that this interpretation of mind in terms of the

life processes of animal bodies interacting with their environment issues from that dominance of biological concepts which is characteristic of so much nineteenth century philosophy. But this conceptual framework appeals also to that philosophical motive which can be described as the love of continuity. For, the life processes which comprise an animal body are continuous with the rest of nature in two senses. They are parts of the same space-time continuum of which all physical objects and events are, in Alexander's phrase, specific configurations. Also, such a continuity appears to imply that animal bodies are com-present with other physical objects and events with no intervening or representative stuff of consciousness or ideas. Animal bodies are next to and immediately contiguous with environing objects and processes, themselves continuous with more distant and remote events in the space-time continuum of nature. The interpretation of knowledge in terms of immediacy, of a direct presentation of objects to the mind or body of an animal organism, or in terms of the effective and direct working over, reorganization, and control of the environment, issues from this motive of continuity.

The third motive which plays a part in the interpretation of mind in terms of the contact between animal bodies and their environment is this. Processes live in time, and time is an abstraction, as Whitehead urges, from the "passage of nature," "its development, its creative advance." The belief in the reality of time, the motive which Lovejoy has characterized negatively as "the obsolescence of the eternal," finds expression in the identification of mind with the processes which comprise an animal body in its intercourse with a nature which itself is a "passage of events." I do not mean to imply that any thinker who takes time seriously is thereby of necessity committed to an interpretation of mind in terms of the processes of animal bodies. But this motive, when joined to a biological bias and the motive of continuity, leads to the rejection of any view according to which mind is the witness to some significant whole structure,

such, for instance, as is represented by traditional idealism. These motives lead also to the rejection of any view according to which the characteristic achievement of mind is definable, not in terms of process, but in terms of essences and ideas, meanings and forms, whose locus does not lie in the passage of events.

The belief that the salient clew to the nature and habitat of mind is to be found in the active intercourse of an animal body with its natural environment is a characteristic presupposition or directive idea in diverse types of philosophical synthesis as well as of psychology. I propose to discuss three types of philosophy which give expression to this motive. All of them report that mind is to be found only where animal bodies of a sufficient degree of complexity are engaged in an active intercourse with their environment. But this well grounded observation, which no authentic experience appears to discredit, is made the basis for the further statement that the whole nature of mind is exhaustively to be defined in terms of the interaction between life processes and environing objects. The three distinct ways in which, in current discussions, such a task is essayed are these. First is the view variously called the relational theory of mind, the searchlight theory, the cross-section theory, or the perspective theory. It was first clearly formulated, I think, in James's essay "Does Consciousness Exist?" and is now identified with the writings of the Neo-Realists. The life processes of animal bodies which are here important are the specific neural responses which select out from the total environment those objects or aspects which are the effective stimuli of the organism's sense organs. The objects thus selected out by the neural responses constitute the field of consciousness, of objects perceived, imagined, and felt. A perceived object is identical with the real object in space and time, only in being perceived it enters into a new context determined by the selective neural responses of the organism. Mind becomes a name for the field of objects, events, and relations focussed in a specific perspective which is determined by these neural responses of

the body. Thus defined, mind cannot be said to inhabit an animal body. All that can be said is that the neural responses which define the field of objects identified with mind are those processes of animal bodies which are directed upon and which respond to objects. This type of theory then certainly takes its origin from the concept of life processes interacting with portions or aspects of the environment.

Alexander—I come to a second form of the process-object hypothesis, as we may call this basic, organizing idea—rejects the relational, objective theory of mind. But for him, equally with the Neo-Realists, wherever there is mind there is the intercourse or compresence of a bodily, neural process and an environmental object. Only, what we call mind or consciousness is declared to be identical with a bodily process; it is a “process with the distinctive quality of mind or consciousness in the same place and time with a neural process, that is, with a highly differentiated and complex process of our living body.”¹ To be conscious is to “enjoy” these bodily processes, to experience them from the inside. The object, on the other hand, is “contemplated.” But the contemplation of the object, its being felt, perceived, or known, is itself an enjoyment. Here too, then, we have an interpretation of mind in terms of the intercourse between the life processes of complex, highly developed animal organisms and physical objects.

A third and differing type of theory, but one which works within the general limits of a process-object concept, is afforded by Pragmatism. For Dewey, mind is certainly not identified either with the field of objects selected by neural responses, nor with the acts of enjoyment which constitute the inner side of bodily processes directed upon and compresent with objects. The active, practical intercourse between the organism and its environment is the behavior or experience of the organism. What we call mind or states of consciousness “are but the cross-sections of the flow of behavior, arrested for inspection, made

¹ S. Alexander, *Space, Time and Deity*, II, 5.

in order that we may reconstruct experience in its life history.”² Or, as he puts it in another place, “if it could be shown that psychology is essentially not a science of states of consciousness, but of behavior, conceived as a process of continuous readjustment, then the undoubted facts which go by the name of sensation, perception, image, emotion, concept, would be interpreted to mean peculiar (i.e., specifically qualitative) epochs, phases, crises in the scheme of behavior.”³ Thus, take the case of perception. Instead of saying that a perception is a mental event or content, and as such a moment in or a fragment of the stream of consciousness, one ought rather to say that the self, i.e., the organism is contained in the perception. A perception is a natural event, a phase of behavior, an incident in the intercourse between the organism and the environment. A perception is not presented to a self, but “the organism is involved in the occurrence of the perception in the same sort of way that hydrogen is involved in the happening—producing—of water.”⁴

Here then are three different ways in which the nature and habitat of mind are interpreted when one thinks in terms of the active intercourse between the life processes of bodily organisms and objects in the natural environment. Mind inhabits either the objects selected by specific neural responses (Neo-Realism), or the neural responses themselves (Alexander), or the critical and problematic phases in the “flow of behavior” (Dewey). For each of these three views the habitat of mind is located somewhere in the situation defined by the intercourse between animal bodies and their physical environment, and the nature and function of mind is wholly relevant to such intercourse. Common to these three types of theory as to the nature and habitat of mind is the rejection of any belief in a specific stuff of consciousness which exists as the mind’s contents or data, as the material

² Dewey, *The Influence of Darwin upon Philosophy and Other Essays*, p. 263.

³ Dewey, *Essays in Experimental Logic*, p. 221.

⁴ Dewey, *Journal of Philosophy*, VIII, 552.

which the mind has before it and with which it works. In these views the mind, identified with or inhering in the bodily organism, has before it objects selected from the physical environment of the bodily organism. Only, in Alexander's view, consciousness is a specific quale, and then only of the neural responses of the organism with which the enjoyments characteristic of consciousness are identified, and not of the objects contemplated by or present to such conscious enjoyments. For Dewey an idea stands for such objects in the behavior continuum as are the antecedents and the provocative conditions of intelligent, controlled behavior. And Neo-Realism identifies both consciousness and its contents with the total field of objects selected by the specific neural responses. Now those theories of mind according to which ideas, as something other than physical objects, play no significant rôle in defining the nature of mind, are all of them theories which issue from the directive concept of bodily life processes interacting with the physical environment; and this fact suggests that theories of mind in which ideas do play a conspicuous part take their rise from some different organizing principle. I propose now to set forth certain considerations and motives in the light of which the entire life and habitat of mind are not adequately to be described in terms of the intercourse between animal bodies and their physical environment. We shall then be in a position to formulate an alternative point of view, a different directive concept, and to weigh its comparative merits and adequacy. I shall mention several such motives, ranges of describable facts about the actual life of mind as we know it which, at the very least, set serious problems for those who interpret mind solely in terms of the *life process—physical environment concept*. Moreover, they are motives which, taken together and in their total bearing, suggest one or more different types of theory regarding the nature and habitat of mind.

The first two of these motives may be described as concerned with two aspects of a process in which the life activities of organisms come to be separated by a gap or distance from their

environing objects, and in which such a gap comes to be filled in with specific contents of consciousness, i.e., ideas. To speak thus is confessedly to use a metaphor. But the metaphorical expression of a gap or distance between the activities of the organism and the environing objects is merely a way of describing a break or pause in the continuity of life processes with the objects in the environment which such processes require for their completion and their satisfaction. Where a stimulus arising from an objective situation leads uninterruptedly to its appropriate response, as in the case of instinctive behavior, the continuity between the organism and its world is maintained, and the entire situation appears to be describable in terms other than those of consciousness, of ideas. The origin of consciousness would appear to be coincident with some break in the continuity between organism and environment, between stimulus and response, between organic needs and activities and the fulfilment of those needs which derive from the world in which the organism lives. Consciousness appears "at those points where there is incapacity on the part of the purely physiological mechanism to cope with the demands of the surroundings."⁵ Instead of a physiological mechanism interacting with objects immediately and directly we have, when this discontinuity and gap become sufficiently established, a self holding commerce with its world through the medium of ideas, of meanings and symbols, of scientific generalizations and theories. Between the life processes of the biological organism and the objects which impinge upon them, there comes to be inserted the region of ideas, of contents of consciousness.

We now recognize that between primitive man and nature there existed a thick veil of ideas, habits of thought woven of fancy and superstition, following a pattern different from that of our scientific thinking. Can we now describe the progress of our knowledge of nature as the result of breaking through this primitive veil of ideas, discarding any such medium, and

⁵ Angell, *Psychology*, p. 50.

coming more and more to see nature face to face? Or, must we describe such progress as the discovery and the elaboration of a more adequate system of ideas which still intervene between us and nature, but intervene as do telescopes and microscopes, revealing deeper ranges of nature's life than would be accessible to us without them? I think that the latter alternative points to the more adequate answer, and I shall presently return to this question. But before doing so we may turn to another sort of idea, that which is involved in desire, and observe that the emergence of desire implies a similar tension and break in the continuity of organism and environment. If every conation and impulse, every want and need of the organism were immediately satisfied by some appropriate object ready at hand in the environment, desires would not come into being. Desire originates in a tension, a discrepancy, a distance between the life activities of the organism and the objects which will satisfy and fulfil these conations. The absence of the appropriate satisfaction or of the object capable of yielding satisfaction calls forth the idea of the object, and that idea fills in the gap between the organism and its world. Desires appear to live midway between two extremes. At the lower limit there is the immediacy of impulsive satisfaction, the unbroken continuity of life process and environment. There is no place here for desire because such continuity is unimpaired. At the upper limit there is the immediacy of aesthetic enjoyment and contemplation, where the mind is absorbed or identified with the object contemplated, and in this case desire is stilled through the filling in of the gap between the mind and its object. It is in the middle region between these two limits that the conscious desires and ideas of men live. And such conscious desires and ideas come to be thought of as belonging to a continuous mind or self because of this same lack of immediacy between life processes and objects. If each separate conation found its appropriate object and thereby came to immediate fruition, then each such impulse would be a separate fact, it would be born and it would die and

another take its place, but there would be no occasion for linking them all together as the desires and conations of a single self. This latter happens just because a desire, an idea, exists to which no immediate object corresponds. Objects are fragmentary and discrete over against the existence of continuous desirings and strivings. These accordingly come to stand out against a world of objects and to live their own continuous life. Similarly, on the other hand, the world of objects comes to be thought of as independent and continuous because our processes of dealing with these objects, our handling them, our perceiving, and our knowing them are in turn fragmentary and discrete. The interruptions of sleep and of death, of turning from one set of objects to another, are interruptions in our life and conscious processes, and over against this discontinuity the permanence and coherence of our world of objects stand out. From both sides then, from against the background of fragmentary and discrete objects, a world of continuous conscious processes belonging to a self, and against the background of fragmentary, discontinuous conscious processes, a permanent world of objects, do we see the existence of that gap or distance between life processes and objects which consciousness and ideas come in to fill.⁶

The situation thus defined which is characteristic of the life of mind in man, the distinction between the self and its world and the existence of ideas as contents of consciousness differing from objects immediately in contact with the organism, undoubtedly originates in the behavior situations with which the higher animals and notably man are confronted, and with which they are compelled to cope. Instinctive behavior precedes the emergence of mind and of ideas, but to recognize this need not blind one to whatever new and emergent qualities make their appearance once mind and ideas do come upon the scene of nature and of history. What this first consideration or motive points out is that when you approach the problem of mind wholly from the point of view of life processes interacting with

⁶ Cf. Simmel, *Lebensanschauungen*, *passim*.

the physical objects of their environment, you will not be in a position even to recognize any such gap or distance between them because from such a point of view there can only be an immediacy of contact in the space-time continuum of the animal body and its world.

I turn to our second consideration. It has to do with the range or extent of the contact between the organism and its world. What we have metaphorically spoken of as a distance between these two makes possible a greater breadth and scope of contact. Just as the farther removed one is from an object the more can he take in in a single view, so organisms which touch nature directly and immediately, with no intervening gap, come in contact with their world only at some one focal point, some particular local object, felt or sensed in its isolation. Remove the organism to a distance (in the metaphorical sense), and permit ideas to intervene between it and its world, and the organism, though less immediately in contact with its objects, touches the world not at a focal point but over a broad surface. Ideas, which come to exist when the immediate continuity of life processes and objects is broken and which in a sense come to fill in the gap thus created, possess the capacity of spreading over a surface, of representing and being the symbols of what is not immediate. The difference between touch and vision is a difference in the area of contact between the animal body and its physical world. The area of contact in vision is enormously larger than in direct touch. At best the surface of the body could never touch any surface larger than itself, as when one is swimming under water, and felt surfaces are usually very much smaller than the total body surface. But vision, which is a distant touch, may cover an area many thousand or million times larger than the body, as when we see at night half the surface of distant suns. But the scope of vision of the mind's eye which sees through the medium not of sense organs but of ideas cannot be completely represented by any quantitative increase, however great, in the area of contact between the organ-

ism and its world. There does come with ideas a quantitative increase, as when I think or imagine the part of the room behind me together with the parts in front of me which I see, or when I think of the outlines, not of the map of Africa, but of the real continent itself. But the characteristic achievement of ideas lies elsewhere. For, it is a different dimension of objects, of nature, and of reality which becomes accessible to us through ideas from that which is increasingly revealed as touch develops into vision. When I say, then, that the area of contact between minds and their environment which ideas render possible is broader than any physical surface belonging in common to the bodily organism and the physical objects in the space-time world, I am using again a figure of speech. What ideas allow us to be in contact with,—again the figure of speech—what ideas enable us to know, are aspects, surfaces, and dimensions of our world which cannot in any physical sense impinge upon the body. I shall cite three instances. First, ideas can spread out beyond the present into the past and future, yet all that exists as far as physical efficacy is concerned at any present time is only the present. To know the past is to know the non-existent and the non-*efficacious*, at least that which is non-existent and non-*efficacious* in the sense in which such predicates are applicable to the present. To reply that since time is a reality therefore the present real moment is linked to an equally real past in the same way that, because of the reality of space, my body is linked to the distant sun which I see, is to ignore one meaning of the belief in the reality of time. If time is real, the past does not now exist as does the present. It is not unreal because true judgments about it, and false ones, can be made. But the past is no part of the physically existent present world, though the accumulations and effects of the past may be. No refinement or increase in power of any sense organ would disclose the past. If reality is envisaged solely in terms of bodily life processes interacting with a physical environment, there not only is no past in the sense in which there is always a moving present, but

what once existed and is now real as a past event could not be known to have been so. The distant in time, unlike the distant in space, and because of the very reality of time, cannot itself impinge upon any present process.

A second instance of a dimension which cannot be disclosed to any physical process, and which is revealed through ideas, is that of universals. On this point, if I read him rightly, I find myself unable to follow Alexander. That a universal is a "pattern of configuration in any existent," and that such a form or configuration, *as exemplified in any particular existent*, is a part of the object as sensed or perceived just as much as are its particular, non-categorical qualities, seem to me important and true propositions. But the form, the configuration, the universal as thus perceived, is not perceived as a universal. I as truly perceive the pattern woven into the piece of tapestry as I perceive its frayed edges. Boyle's law is woven into the pressure of a particular gas against the walls of its container just as the pattern is woven into the tapestry. The universal constitutes the form or law of the thing perceived. But while the particular thing or process, including both the configuration as particularized and the accidents of its particularization, impinge upon the body in the space-time continuum, I cannot see that the configuration, the universal as such does so. Nature let fall the apple on Newton's head, but not the law of gravitation. To envisage the configuration, the law of things, is to have access to a dimension of things which no quantitative increase in the refinement and range of sense organs, no further progress in the line of development from touch to vision, could yield. What Santayana says of the searchlight theory of the mind, in which the mind is equated with the collection of objects lighted up—*increase the area of that field as you will*—holds here as well: "to think you have composed consciousness by collecting its objects is like thinking you have created knowledge by collecting a library." The knowledge may well be in the library, but it is only the collection of books which is physically continuous

with my bodily processes. Like the past, the universal, when it is known as such and not merely sensed in its particular embodiment, belongs to a dimension different from that of existent objects in the space-time continuum. In both cases ideas, or some contents of consciousness akin to the nature of ideas, constitute the vehicle through which we have access to these dimensions of reality.

In addition to the real past which no longer exists and universals which are not coincident with the particular structures which embody them, there is a third class of entities which I find difficulty in locating in any process within the space-time continuum. I refer to meanings. The crucial question here is not whether the apprehension of meanings corresponds with or is even identical with some neural process. The meaning as conscious, i.e., the apprehension of meaning is a process, a passage of events in time, and if the process is a neural one, in space as well. But the meaning as apprehended is a structure which possesses a fixity, an immobility, which renders it unfit to be a moment of or a cross-section of a process. The sentence, "the wind is blowing the fallen leaf and the kitten is running after it," stabilizes and arrests in the world of meanings a process of lively animation and change. The meaning and also the truth of the statement is an arrested form, a "concretion in discourse," as Santayana has called it, and this arrested form inhabits neither the objective scene where wind, leaf, and kitten disport themselves, nor the conscious, verbal, or neural process of uttering the sentence or apprehending its meaning. The meaning or truth would subsist if both the objective scene and the conscious process were annihilated as indeed they are by the passage of time. James has called this the principle of "constancy in the mind's meanings." "Amid the flux of opinions and of physical things," he says, "the world of conceptions, of things intended to be thought about, stands stiff and immutable, like Plato's realm of ideas." And this "sense of sameness," he declares, "is the very keel and backbone of

our thinking." I think we can say even more than this. We have here, I believe, an instance and a witness in our conscious life of a feature of reality which is universal and pervasive, a categorical quality, which I am inclined to suspect holds out a greater promise of pointing the way to a metaphysics than any other single aspect of our world. The processes of nature, of life, of history, and of mind become concentrated in and focussed upon discrete objects, forms, structures, institutions, individuals, and meanings. I feel less sure about the relation between process and form in inorganic nature, but the view which Alexander has set forth with such persuasive power lends itself to this interpretation. Whether or not physical things are coagulations and configurations of space-time, momentary embodiments of the continuous flow of processes which destroy them as well as form them, certain it is that life processes become stabilized in discrete forms, individuals, and types. In the processes of history and of society, fixed institutions arise, civilizations, laws, and customs which in turn are destroyed by the processes which engendered them, and make place for other fixed forms. Likewise the stream of conscious processes becomes concentrated upon individual interests, meanings, and values, concretions in discourse, which once formed and apprehended are in turn discarded and replaced by new forms. The world of nature, of history, of mind is neither exclusively a world of process, of the passage of events, nor a world of eternal forms and substances. It is a world of mutual intercourse between processes and form. But there exists a fundamental discrepancy and tension between process and form because processes are continuous and dynamic while forms are discrete and immobile. The processes of nature, of life, of history, and of mind overflow and engulf the forms and individual structures which they create and which embody for a moment the life of things. And these successive discrete forms redirect and modify the ceaseless flow of process. The dialectic of nature, of history, and of mind is empirically discoverable after the event, but it is not capable

of any prior wholesale deduction because it is not prefigured in any existent totality given once for all. This would be the ground of my dissent from any metaphysical Absolutism in the fashion of Hegel, such for instance as is implied in the question which Bosanquet puts thus: "What, then, is the contradiction which drives the reality from form to form, if it is not the contrast of each with an immanent whole?"⁷ It is not the contrast and contradiction between a fragment and a totality, but that between process and form, between continuity and discreteness, between what Alexander calls the "inherent restlessness of time," and the fixed, discrete definiteness of forms and structures, of meanings and individuals. I may have said enough merely to suggest in outline an organizing and directive idea, different from that of life processes inserted within nature's processes, different from that of the flow of organic behavior, and more apt, it seems to me, to disclose and to define the life and habitat of mind.

But there is a further consideration which bears upon the adequacy of the organizing concept of bodily processes continuous with nature's processes and, in consequence, of the three theories of mind in which that directive idea is displayed. This further consideration to which I now turn becomes more intelligible in the light of the tension and discrepancy, just noted, between continuous processes and discrete forms and structures. Ideas, we have seen, may be said, metaphorically at least, to fill in the gap which comes to exist between the life processes of animal bodies and the external world when the continuity between and the adaptation of organism to environment can no longer be maintained through the mechanism of instinct. Ideas, like sense organs, exist between the organism and its world, and they inevitably come thereby to play a double rôle and to lead a double life. They are possessions of the organism or self, instruments in the furtherance of its activities and

⁷ Bosanquet, *The Meeting of Extremes in Contemporary Philosophy*, p. 58.

interests, and they are at the same time disclosures and symbols of external objects. Ideas are the meeting points of life processes and conations, and of the objects and events which go their own way in the environing world of nature. Ideas have their internal and their external meanings. They are moments or eddies in the stream of consciousness, and they are also the impressions and echoes of nature's objects. Pragmatism sees ideas chiefly or wholly as embedded in the flow of behavior, tools which the self uses to relieve the tension of obstructed needs and interests. Realism tends to view ideas as identical with objects, or as symbols of objects. The paradox or anomaly of knowledge lies in the demand that they shall be both these things and thereby serve two masters, that they shall be effectively present in the momentary pulse of conscious life, and also the witness to and the revelation of a world which stretches into past and future, and out into dimensions encompassing the nature of things. Ideas are those significant moments in the stream of consciousness which reveal objective meanings.

Now this consideration with respect to the status of ideas prepares us to observe a problematic situation with which any adequate theory of mind has to reckon. Any process, whether of life or of consciousness, possesses a characteristic relational structure, whether of causality or of the sheer restlessness of time. There are universal categorial qualities which belong to process as such, qualities which are perhaps deducible from the general nature of a continuum, and there are besides the biological characteristics of life processes and the psychological traits of mind processes. The life of ideas will share in the relational structure, the logic of process as such, of life processes, and of conscious processes. For ideas are certainly moments and episodes in the life history of individual streams of consciousness, of selves. But the whole story as to the sort of system, of relational structures, with which ideas are involved and into which they enter, is not thereby completely told. For ideas also reveal objective meanings. This reference to objective

meanings is so intimate and so closely woven into the nature and function of ideas as conscious entities, that we are almost justified in saying that ideas *are* meanings as well as moments in a process. Now it is to be noted that the relations subsisting between meanings and contents, forming thereby what James in the last chapter of his *Psychology* calls "ideal systems," are not the same as the relations subsisting between moments in a time process. The logic of a series of events comprising a process is not the same as the logic of a set of elements comprising an ideal system. That they are necessarily different is suggested by the fact already referred to, that processes are continuous, whereas meanings, like forms and individuals, are discrete. Consider, as an illustration, the history of mathematical ideas. The discovery of mathematical truths has been a historical process occurring in time, and effected by individual minds attached to animal bodies and carried along in the stream of social processes, in the development of civilization. Mathematical ideas are strewn along the course of history in the career of European civilization. In the same way the emergence of mathematical ideas in the life history of an individual forms a part of his biography. But mathematical ideas form not only such a time series of moments in an historical and biographical process. They are elements within a logical structure of mathematical meanings and truths, and such a structure is an objective system defined by relations other than those which any description of the course of a life process would disclose. As elements of such a system they have an intrinsic logic of their own independent of the logic or relational structure of the life and mind processes of an animal body or of a civilization living in history. And in so far as the emergence of mathematical ideas in history or in the life of an individual has been the emergence of true ideas, the course of these processes has been constrained not by the requirements and the logic of life processes, but by that of the ideal or idea system of mathematical truths.

A similar relation characterizes wide and pervasive regions of human experience in which the activities of men's minds impinge upon those structures and meanings which are the objects of our knowledge and the instruments of our practical interests. Men make tools. Their tool making originates in some vital need, some felt want which stumbles upon some object in nature which can be fashioned for human use. The object thus enters as an instrument into the process of life's activities. But the use of the tool depends not only on the need which it serves and into which it fits, but in a degree fully as great or even greater, its use depends upon the objective structure, the independent grain of the stuff and qualities which belong to the tool itself. The artisan's use of the tool is as much guided by this objective grain and texture as by his own technical skill and purposes. The tool is the meeting point of the relational structure, the logic characteristic of the practical needs of the life process which creates and uses it, and also that of the independent texture of the stuff comprising the tool. In a sense somewhat figurative to be sure, but not too remote from the facts, one may say that the tool, in so far as it is not wholly plastic, in so far as it has a nature of its own, "uses" the activities and life processes of the artisan who, as we commonly say, uses it. Language is another instance of the same generic situation. Whatever may have been the origin of speech, it comes to serve as an instrument both for fixing and elaborating our meanings, for conceptual analysis and synthesis, and for social communication. But language like everything objective, including the products of human activity and invention, once it exists, possesses a relational structure, a texture and logic, even a momentum of its own. In the use of language our thought processes in some measure always follow along and are guided by the suggestions and implications of this objective word structure of language. Here it becomes less figurative to say that when we carry on a course either of thought or of conversation it is language which uses us and which speaks in us as well

as we who use language. This would appear to be the element of truth in the view maintained from Hobbes to Dewey that speech reactions constitute the essence of all thinking.

The structures and institutions which comprise man's social environment must originally have been the outward deposit and projection of the energies residing within his nature. Custom and law, government and industry, must have sprung from man's instinctive life processes and needs. But once they exist they too, like tools and like language, possess a relational structure, a logic and a momentum of their own which is not identical with that of the processes which originally engendered them. The result is that individuals are always to some extent caught up in the machinery of social structures and carried along by the momentum not of their own nature, their own purposes and desires, but by that of the objective social institutions in which their own lives are embedded. The actions of men in history and society constitute the meeting point of the relational structure, the logic of their individual life processes and that of the social environment to which they belong.

So it is with ideas, to which we may come back. I have been making various suggestions by way of analogy in order to clarify the relation between the mind's processes whereby we apprehend meanings, and the contents or objects of our ideas, the meanings apprehended. Not only do meanings, as fixed, discrete entities not exist within the continuum of any time process; not only are meanings and universals, past and future, not located in the intercourse between the life processes of the body and that continuous passage of events which is nature. The range of meanings and truths apprehended by ideas, and the objects of men's practical and ideal interests as well, constitute systems possessing an objective structure of their own and which become increasingly disclosed in the human life of reason. These objective structures stand for dimensions of the total and real environment of men's minds; they elicit and direct the course of ideas and of practical interests which com-

prise the life of the mind. Meanings, though known by ideas, do not reside solely in the processes of consciousness. Nor can the term nature be stretched sufficiently wide to include these significant structures which are the objects and the habitat of our ideas. The last chapter of James's *Psychology* from which I have borrowed the term 'ideal system,' and whose metaphysical importance it would be hard to exaggerate, is an exposition of the contrast between the relational structure of experience, i.e., "the way in which reality exists or the way in which it comes before us," and the "order of scientific thought." This chapter supplies a commentary on the achievement of Alexander, whose central view is that the time-space continuum of nature, as it emerges into life and mind, provides the matrix, the scene and locus of all ideas and meanings, all knowledge and values. It is the thesis of James in this chapter, first, that the ideal systems of science, art, and morality are incongruent with the relational structure of reality as presented in experience, and second, that these ideal systems, these internal relations which enter the mind "by the back stairs as it were, or rather have not entered the mind at all, but got surreptitiously born in the house,"⁸ that these ideal systems or ideas furnish a guide to the mind in its intercourse with its world. Thus, "the relations of resemblance and difference among things have nothing to do with the time and space order in which we may experience the latter." But the relation of resemblance is for James the generating principle of a rational ideal system which becomes exemplified in all our exact knowledge of nature. His conclusion is that "the mind is filled with necessary and eternal relations which it finds between certain of its ideal conceptions, and which form a determinate system, independent of the order of frequency in which experience may have associated the conception's originals in time and space."⁹ In scientific knowledge we fling this network over outer realities. We learn to look out upon the passage

⁸ James, *Psychology*, II, 627.

⁹ *Ibid.*, p. 661.

of events in nature's processes through the medium of an ideal system possessing the sort of relational structure which is the fitting habitat of the mind. I quote once more from James. "Thousands of years ago," he says, "men started to cast the chaos of nature's sequences and juxtapositions into a form that might seem intelligible. Many were their ideal prototypes of rational order: teleological and aesthetic ties between things, causal and substantial bonds, as well as logical and mathematical relations. The most promising of these ideal systems at first were of course the richer ones, the sentimental ones. The baldest and least promising were the mathematical ones; but the history of the latter's application is a history of steadily advancing successes, whilst that of the sentimentally richer systems is one of relative sterility and failure."¹⁰ Sterility and failure, it should be added, so far as a scientific knowledge of nature is concerned; but not wholly so if we are to recognize, as I think we must, that significant idea structures other than mathematical and scientific systems also comprise the habitat of mind as it increasingly discovers the nature of its own life and that of its world. These significant idea structures, like tools, language, and the fabric of social institutions, have a grain and logic of their own. We think them and when our minds live in them, they use us and live in us.

There is a certain ambiguity as to what it might mean to write the natural history of mind. One might begin by describing the way in which animal bodies are inserted within and surrounded by the processes of nature. Animal bodies are themselves processes and are continuous with those of nature. A natural history of mind will take its departure from the active intercourse between bodily life processes and the physical objects and events in the environment. It will observe the emergence of a situation in which this continuity between life processes and the physical environment is, in some measure, broken. It will observe a delay in the response, at first wholly physiological

¹⁰ James, *Psychology*, II, 665.

and instinctive, to the stimuli which surrounding objects afford. This pause in the flow of behavior brings it about that the object impinging upon the animal's body at some sense organ is not merely an isolated physical object, but a sign of other and distant physical objects. It is perceived and it acquires a meaning. The organism comes to be inserted into nature's processes not only at a thin momentary point, but to touch nature over a surface, broader than the present moment. Memory and anticipation build up and add to the area of that contact. Ideas come to intervene between bodily life processes and the environment, and the career of mind is started on its way. But only started. For, the natural history of mind will record the emergence, gradual, natural but momentous, of an environment different from that of physical objects. Man has a history; he lives in a social environment, and animals do not. By this is meant something more than that man lives in the presence of other animal bodies like his own, recognizing them as his fellows, herding, fighting, and cooperating with them. Dogs and buffaloes do as much. The world in which man lives is full of the accumulated deposits of his social heritage, felt and known as such. It is in the intercourse of man with this social heritage and environment that interests, sentiments, beliefs, and loyalties are generated, just as perceptions arise through the intercourse of animal bodies and physical objects. The history of mind will observe and record the give and take, the mutual interdependence of these interests, beliefs, and sentiments, and the objective fabric of his social order and the processes of history. It will observe the energies of human nature taking on objective shape in customs and laws, political and economic institutions, and these in turn reacting back upon human nature, eliciting some of men's energies and providing no outlet for others. But a new chapter in the history of the mind opens when idea systems, which at first and for long are simply the means of intercourse between the individual and his social world, tied down to the social structures which have engendered them, become released from

their social origins and begin to go their own way, determined by the inherent logic of significant thought structures. The life of reason and imagination, of science and art begin their career. These idea systems, generated by language and social coöperation, invade morality and religion, they generate ideals of political and economic organization and, in scientific knowledge, they provide that medium of mathematical and logical thought structures through which men come to look out upon nature. So that the history of mind will have to record not only the emergence and the continuous support of the mind's processes in the processes of nature and of life, but the career and the logic of these idea systems, these significant structures in which the life of the mind is displayed.

There is thus a double meaning which attaches to the phrase 'the habitat of mind.' Our minds are, as existences, processes which are rooted in the life processes of animal bodies. In this sense our minds inhabit animal bodies. Now the processes of nature may be said to live in the time-space matrix or continuum which sustains them. But in another sense nature's processes live in the physical forms and structures which these continuous processes generate and destroy. The processes of life also in one sense live amidst the physical energies of nature, the chemical compounds which make life possible. In another no less real sense the processes of life live in the individual forms of plants and animals which comprise a discrete series of individuals thrown off and left behind by the onward sweep of life's processes. Just so, the processes of history and of society live within the envioning world of nature, seashore and mountain, climate and race, but they too live in the concrete social structures and institutions in which the energies of history and of society take on individual form. Our minds live in our bodies in the same way that life processes live in the chemical compounds and physical energies which sustain them, and in the same way that the processes of history live in the natural environment which provides the background of history. But our

minds live also in the objects and forms which we think and know, enjoy and love, in the interests and values to which our sentiments and loyalties are attached. Our minds live in the significant idea systems in which the life of mind is displayed, just as life processes live in individual forms, and the processes of history in social structures.

If now we mean by the habitat of mind the system of energies and structures which have engendered and which sustain mind, then we shall say that mind inhabits animal bodies of a certain degree of complexity in their active intercourse with their environment. We shall have in the same sense to say also that minds inhabit the processes of history and of society. These too contribute to the formation of the mind. But if we mean by the habitat of the mind, as we well may, the structures and objects in which the mind's processes eventuate, the forms in which the process becomes displayed, then we will say that the mind inhabits the significant objects to which it is attached through knowledge, interest, and appreciation, and that these significant structures comprise the habitat of mind.