sion into unity of the patterned aspects of the universe of events. Its knowledge of itself arises from its own relevance to the things of which it prehends the aspects. It knows the world as a system of mutual relevance, and thus sees itself as mirrored in other things. These other things include more especially the various parts of its own body.

It is important to discriminate the bodily pattern, which endures, from the bodily event, which is pervaded by the enduring pattern, and from the parts of the bodily event. The parts of the bodily event are themselves pervaded by their own enduring patterns, which form elements in the bodily pattern. The parts of the body are really portions of the environment of the total bodily event, but so related that their mutual aspects, each in the other, are particularly effective in modifying the pattern of either. This arises from the intimate character of the relation of whole to part. Thus the body is a portion of the environment for the part, and the part is a portion of the environment for the body; only they are peculiarly sensitive, each to modifications of the other. This sensitiveness is so arranged that the part adjusts itself to preserve the stability of the pattern of the body. It is a particular example of the favourable environment shielding the organism. The relation of part to whole has the special reciprocity associated with the notion of organism, in which the part is for the whole; but this relation reigns throughout nature and does not start with the special case of the higher organisms.

Further, viewing the question as a matter of chemistry, there is no need to construe the actions of each molecule in a living body by its exclusive particular reference to the pattern of the complete living organism. It is true that each molecule is affected by the aspect of this pattern as mirrored in it, so as to be otherwise than what it would have been if placed elsewhere. In the same way, under some circumstances an electron may be a sphere, and under other circumstances an egg-shaped volume. The mode of approach to the problem, so far as science is concerned, is merely to ask if molecules exhibit in living bodies properties which are not to be observed amid inorganic surroundings. In the same way, in a magnetic field soft iron exhibits magnetic properties which are in abeyance elsewhere. The prompt self-preservative actions of living bodies, and our experience of the physical actions of our bodies following the determinations of will, suggest the modification of molecules in the body as the result of the total pattern. It seems possible that there may be physical laws expressing the modification of the ultimate basic organisms when they form part of higher organisms with adequate compactness of pattern. It would, however, be entirely in consonance with the empirically observed action of environments, if the direct effects of aspects as between the whole body and its parts were negligible. We should expect transmission. In this way the modification of total pattern would transmit itself by means of a series of modifications of a descending series of parts, so that finally the modification of the cell changes its aspect in the molecule, thus effecting a corresponding alteration in the molecule—or in some subtler entity. Thus
the question for physiology is the question of the physics of molecules in cells of different characters.

We can now see the relation of psychology to physiology and to physics. The private psychological field is merely the event considered from its own standpoint. The unity of this field is the unity of the event. But it is the event as one entity, and not the event as a sum of parts. The relations of the parts, to each other and to the whole, are their aspects, each in the other. A body for an external observer is the aggregate of the aspects for him of the body as a whole, and also of the body as a sum of parts. For the external observer the aspects of shape and of sense-objects are dominant, at least for cognition. But we must also allow for the possibility that we can detect in ourselves direct aspects of the mentalities of higher organisms. The claim that the cognition of alien mentalities must necessarily be by means of indirect inferences from aspects of shape and of sense-objects is wholly unwarranted by this philosophy of organism. The fundamental principle is that whatever merges into actuality, implants its aspects in every individual event.

Further, even for self-cognition, the aspects of the parts of our own bodies partly take the form of aspects of shape, and of sense-objects. But that part of the bodily event, in respect to which the cognitive mentality is associated, is for itself the unit psychological field. Its ingredients are not referent to the event itself; they are aspects of what lies beyond that event. Thus the self-knowledge inherent in the bodily event is the knowledge of itself as a com-

plex unity, whose ingredients involve all reality beyond itself, restricted under the limitation of its pattern of aspects. Thus we know ourselves as a function of unification of a plurality of things which are other than ourselves. Cognition discloses an event as being an activity, organising a real togetherness of alien things. But this psychological field does not depend on its cognition; so that this field is still a unit event as abstracted from its self-cognition.

Accordingly, consciousness will be the function of knowing. But what is known is already a prehension of aspects of the one real universe. These aspects are aspects of other events as mutually modifying each the others. In the pattern of aspects they stand in their pattern of mutual relatedness.

The aboriginal data in terms of which the pattern weaves itself are the aspects of shapes, of sense-objects, and of other eternal objects whose self-identity is not dependent on the flux of things. Wherever such objects have ingressio into the general flux, they interpret events, each to the other. They are here in the perceiver; but, as perceived by him, they convey for him something of the total flux which is beyond himself. The subject-object relation takes its origin in the double rôle of these eternal objects. They are modifications of the subject, but only in their character of conveying aspects of other subjects in the community of the universe. Thus no individual subject can have independent reality, since it is a prehension of limited aspects of subjects other than itself.

The technical phrase 'subject-object' is a bad term.
for the fundamental situation disclosed in experience. It is really reminiscent of the Aristotelian 'subject-predicate.' It already presupposes the metaphysical doctrine of diverse subjects qualified by their private predicates. This is the doctrine of subjects with private worlds of experience. If this be granted, there is no escape from solipsism. The point is that the phrase 'subject-object' indicates a fundamental entity underlying the objects. Thus the 'objects,' as thus conceived, are merely the ghosts of Aristotelian predicates. The primary situation disclosed in cognitive experience is 'ego-object amid objects.' By this I mean that the primary fact is an impartial world transcending the 'here-now' which marks the ego-object, and transcending the 'now' which is the spatial world of simultaneous realisation. It is a world also including the actuality of the past, and the limited potentiality of the future, together with the complete world of abstract potentiality, the realm of eternal objects, which transcends, and finds exemplification in and comparison with, the actual course of realisation. The ego-object, as consciousness here-now, is conscious of its experient essence as constituted by its internal relatedness to the world of realities, and to the world of ideas. But the ego-object, in being thus constituted, is within the world of realities, and exhibits itself as an organism requiring the ingestion of ideas for the purpose of this status among realities. This question of consciousness must be reserved for treatment on another occasion.

The point to be made for the purpose of the present discussion is that a philosophy of nature as organic must start at the opposite end to that requisite for a materialistic philosophy. The materialistic starting point is from independently existing substances, matter and mind. The matter suffers modifications of its external relations of locomotion, and the mind suffers modifications of its contemplated objects. There are, in this materialistic theory, two sorts of independent substances, each qualified by their appropriate passions. The organic starting point is from the analysis of process as the realisation of events disposed in an interlocked community. The event is the unit of things real. The emergent enduring pattern is the stabilisation of the emergent achievement so as to become a fact which retains its identity throughout the process. It will be noted that endurance is not primarily the property of enduring beyond itself, but of enduring within itself. I mean that endurance is the property of finding its pattern reproduced in the temporal parts of the total event. It is in this sense that a total event carries an enduring pattern. There is an intrinsic value identical for the whole and for its succession of parts. Cognition is the emergence, into some measure of individualised reality, of the general substratum of activity, poised before itself possibility, actuality, and purpose.

It is equally possible to arrive at this organic conception of the world if we start from the fundamental notions of modern physics, instead of, as above, from psychology and physiology. In fact by reason of my own studies in mathematics and mathematical physics, I did in fact arrive at my convictions in this way. Mathematical physics pre-
form of electric charge. Such an event has three roles in physics. In the first place, it is the actual scene of an adventure of energy, either as its habitat or as the locus of a particular stream of energy: anyhow, in this role the energy is there, either as located in space during the time considered, or as streaming through space.

In its second role, the event is a necessary link in the pattern of transmission, by which the character of every event receives some modification from the character of every other event.

In its third role, the event is the repository of a possibility, as to what would happen to an electric charge, either by way of deformation or of locomotion, if it should have happened to be there.

If we modify our assumption by considering an event which includes in itself a portion of the life-history of an electric charge, then the analysis of its three roles still remains; except that the possibility embodied in the third role is now transformed into an actuality. In this replacement of possibility by actuality, we obtain the distinction between empty and occupied events.

Recurring to the empty events, we note the deficiency in them of individuality of intrinsic content. Considering the first role of an empty event, as being a habitat of energy, we note that there is no individual discrimination of an individual bit of energy, either as statically located, or as an element in the stream. There is simply a quantitative determination of activity, without individualisation of the activity in itself. This lack of individualisation is still more evident in the second and third roles.
An empty event is something in itself, but it fails to realise a stable individuality of content. So far as its content is concerned, the empty event is one realised element in a general scheme of organised activity.

Some qualification is required when the empty event is the scene of the transmission of a definite train of recurrent wave-forms. There is now a definite pattern which remains permanent in the event. We find here the first faint trace of enduring individuality. But it is individuality without the faintest capture of originality: for it is merely a permanence arising solely from the implication of the event in a larger scheme of patterning.

Turning now to the examination of an occupied event, the electron has a determinate individuality. It can be traced throughout its life-history through a variety of events. A collection of electrons, together with the analogous atomic charges of positive electricity, forms a body such as we ordinarily perceive. The simplest body of this kind is a molecule, and a set of molecules forms a lump of ordinary matter, such as a chair, or a stone. Thus a charge of electricity is the mark of individuality of content, as additional to the individuality of an event in itself. This individuality of content is the strong point of the materialistic doctrine.

It can, however, be equally well explained on the theory of organism. When we look into the function of the electric charge, we note that its rôle is to mark the origin of a pattern which is transmitted through space and time. It is the key of some particular pattern. For example, the field of force in any event is to be constructed by attention to the adventures of electrons and protons, and so also are the streams and distributions of energy. Further, the electric waves find their origin in the vibratory adventures of these charges. Thus the transmitted pattern is to be conceived as the flux of aspects throughout space and time derived from the life history of the atomic charge. The individualisation of the charge arises by a conjunction of two characters, in the first place by the continued identity of its mode of functioning as a key for the determination of a diffusion of pattern, and, in the second place, by the unity and continuity of its life history.

We may conclude, therefore, that the organic theory represents directly what physics actually does assume respecting its ultimate entities. We also notice the complete futility of these entities, if they are conceived as fully concrete individuals. So far as physics is concerned, they are wholly occupied in moving each other about, and they have no reality outside this function. In particular for physics, there is no intrinsic reality.

It is obvious that the basing of philosophy upon the presupposition of organism must be traced back to Leibniz. His monads are for him the ultimately real entities. But he retained the Cartesian substances with their qualifying passions, as also equally expressing for him the final characterisation of real things. Accordingly for him there was no concrete reality of internal relations. He had therefore on

\[\text{Cf. Bertrand Russell, The Philosophy of Leibniz, for the suggestion of this line of thought.}\]
his hands two distinct points of view. One was that the **final real entity** is an organising activity, fusing ingredients into a unity, so that this unity is the reality. The other point of view is that the final real entities are substances supporting qualities. The first point of view depends upon the acceptance of internal relations binding together all reality. The latter is inconsistent with the reality of such relations. To combine these two points of view, his monads were therefore windowless; and their passions merely mirrored the universe by the divine arrangement of a pre-established harmony. This system thus presupposed an aggregate of independent entities. He did not discriminate the event, as the unit of experience, from the enduring organism as its stabilisation into importance, and from the cognitive organism as expressing an increased completeness of individualisation. Nor did he admit the many-**termed relations**, relating sense-data to various events in diverse ways. These many-termed relations are in fact the perspectives which Leibniz does admit, but only on the condition that they are purely qualities of the organising monads. The difficulty really arises from the unquestioned acceptance of the notion of simple location as fundamental for space and time, and from the acceptance of the notion of independent individual substance as fundamental for a real entity. The only road open to Leibniz was thus the same as that later taken by Berkeley [in a prevalent interpretation of his meaning], namely an appeal to a *deus ex machina* who was capable of rising superior to the difficulties of metaphysics.

In the same way as Descartes introduced the tradition of thought which kept subsequent philosophy in some measure of contact with the scientific movement, so Leibniz introduced the alternative tradition that the entities, which are the ultimate actual things, are in some sense procedures of organisation. This tradition has been the foundation of the great achievements of German philosophy. Kant reflected the two traditions, one upon the other. Kant was a scientist, but the schools derivative from Kant have had but slight effect on the mentality of the scientific world. It should be the task of the philosophical schools of this century to bring together the two streams into an expression of the world-picture derived from science, and thereby end the divorce of science from the affirmations of our aesthetic and ethical experiences.