The Ingression of Scientific Objects

HERE, THE CONSTRUCTION of the concept of nature must confront the risk of bifurcation, for nature, "what we are aware of in perception," will become populated by "objects" that declare themselves to be "independent of the percipient event"; those very ones that, as the case may be, will be evoked to "explain perception." Electromagnetic radiation would constitute the objective explanation for what you are subjectively aware of as "red." To deal separately with the question of the mode of ingression of scientific objects does not mean to confer upon them a "fundamental" character: the singing bird or the leaping tiger are just as important. Once again, what is at stake is not to explain everything we are aware of. In this case, as we remember Whitehead has emphasized, ingression should be declined according to an indefinite number of distinct modes, all of which exhibit multiple relations. The discrimination between the three types of mode, corresponding to sense-objects, perceptual, and scientific objects, responds to the need to prevent nature from bifurcating. The goal will be to show that "scientific objects," far from designating a nature that is "independent of perception," imply, like sense-objects and perceptual objects, that nature has "given a foothold" to the mind. They too thus belong to nature, as respondents to this foothold that refer to the mind, which is what is ultimate.

By the time Whitehead undertook to think of "scientific objects," the point was no longer merely to articulate with the concept of nature statements explicating the regularities proper to observable phenomena. Physics and chemistry have succeeded in transgressing the limits that tied them to the generalizations articulating measurable factors (pressure,

temperature, and so on) in various roles. These sciences actually identified, beyond the phenomena, the "tiny bodies" supposed for centuries by the bifurcators of nature, but which others denounced as the perfect example of dubious speculative constructions, menacing the rational identity of the scientific enterprise. But Whitehead is happy to accept this event. He who was trying to construct a concept of nature affirming what we are aware of in perception did not harbor any nostalgia toward what remained possible until the end of the nineteenth century: to assign limits to scientific descriptions that affirm the indisputable primacy of what we are directly aware of, what we can observe and measure.

Physicists and chemists, it is said, have succeeded in "going beyond the phenomena," but this expression has many meanings. There is one that Whitehead would reject: identifying the phenomenon with what is illusory. Thus, when astronomers make fun of astrologers, they oppose the constellations, "appearances" on which the astrologers have relied, to their knowledge that constellations designate groups of stars that are completely unconnected, some of them close, others very far away. The group exists only for inhabitants of the earth, for only the terrestrial viewpoint can thus unite stars that do not have the least privileged relationship among themselves. However, this opposition is polemical, in that it rests entirely on an abstract resemblance: astronomers, like astrologers, contemplate the heavens. But the astronomers' heaven is "scientific," insofar as they are interested in the luminous points they observe in a mode that defines them as "physical objects," that is, playing the role of active conditions for the emission of light. The astronomical tradition has diverged from astrological practice, insofar as it has devoted itself to discovering what attention is due to these physical objects, how one "finds more" in a sky which, by this very fact, finds itself practically defined as bereft of any other meaning.

It is also on the basis of the attention devoted to what has a role, to what actually plays the role of active condition for the ingression of (measurable) sense-objects, that the difference can be stated between the electrons, atoms, and molecules that henceforth populate physics, and the atoms of ancient hypotheses. Physicists and chemists have thought of the atom, and other unobservable entities, as actors, that is, on the basis of their roles in "events" (collisions, chemical associations, emissions, decompositions, and so on), and they have conferred upon these events the hypothetical role of "situations," the active conditions of certain experimental observations. Their success means that these hypotheses have allowed them to "find more," that is, to produce specific experimental situations in which a precise and "falsifiable" reference to those unobservable actors is

necessary to explain what can be observed. This is the paradigmatic experimental achievement. The experimenter is now in a position to affirm that atoms are not a mere interpretative hypothesis, since no one can interpret what she has observed without recourse to them: they are the respondents to which the difference between an interpretative hypothesis and a fruitful hypothesis refers.

Whitehead can thus serenely celebrate the atoms of the physicists and chemists because they have nothing to do with the "tiny bodies" associated with the bifurcation of nature. These atoms are by no means active participants in an operation of distribution between what pertains to "us" and what pertains to nature. They are a response to the kind of attention associated with the experimental effort. "Going beyond the phenomena," here, does not at all mean going "beyond" secondary qualities toward a nature "independent" of our perceptions; it is to prolong the test already pointed out by the distinction between perceptual object and physical object. It is not merely a matter of verifying, like a rabbit turning its head in the direction of a noise, the conveyance "noise-movement of a predator," but of explaining the multiple significations that can be assumed by the term "active condition." Nor is it a matter of limiting oneself to multiplying experimental regularities and to defining the distinct roles of each measurable factor that plays a part in the corresponding situations as active conditions for observation. The scientific object responds to an additional achievement: these "roles" no longer respond only to the first experimental question *"What's going on?"* They can also be related to the presence of "objects" which, for their part, do not pass.

The origin of scientific knowledge is the endeavour to express in terms of physical objects the various rôles *of events as active conditions in the ingression of sense-objects into nature. It is in the progress of this investigation that scientific objects emerge. They embody those aspects of the character of the situations of the physical objects which are most permanent and are expressible without reference to a multiple relation including a percipient event* [. . .] *In fact the whole point of the search for scientific objects is the endeavour to obtain this simple expression of the characters of events. These scientific objects are not themselves merely formulae for calculation; because formulae must refer to things in nature, and the scientific objects are the things in nature to which the formulae refer* (CN, 158).

The question of the active condition is central, both for the scientific undertaking and for living beings. If nature were made up only of sense-objects, ghostly contacts, floating odors, sounds, luminous shimmerings, all without an identifiable source, the scientific enterprise would not have

been possible. But neither would there have been any physical object nor any living beings, for living beings testify to a world where, like the little match girl, we die if the odor does not announce, at least sometimes, a nourishing encounter with what is its active condition. This is true whether the living beings are aware or not. Thus, we may think that a butterfly does not really have the perceptual experience "of a world," and that its flight responds to what we would call "detection," not to the experience of the signs of the world that sense-objects represent for us. Yet when its flight is oriented in the direction in which what is detected increases in intensity, there most often occurs, fortunately for it, an encounter with what we call a flower, what we, for our part, identify as an active condition for the ingression of the odor, and what, for it, will be a concrete, delectable experience, the eventuality of which was presupposed by its life as a butterfly.

To cite the example of the butterfly as an experience involving detection rather than perception does not mean to designate it as an automaton, but to call it to witness to understand a "scientific object" that declares itself to be independent of the percipient event. The butterfly, whatever its own experience may be, testifies to the flower as a physical object. A specific flower, in the sense in which we recognize it as an object—*say, there's that rose again!*—may well be illusory—*another hologram!* And what attracts the butterfly may be a lure set by an entomologist. Yet the butterfly, human disappointment, and the very notion of a lure celebrate the trust that, "by going to take a closer look," we will most often discover what plays the role of an active condition in the ingression, both of what the butterfly detects and of what we perceive as odor and color.

The scientific enterprise, like living beings themselves, like common sense itself, requires a world in which sensible signs signify in a generally reliable way; in which, when discerning a sense-object, we can anticipate, without being wrong too often, certain features of what only declares itself in experience as discernible. The butterfly's mode of existence requires that the detection of what is for us a specific color or odor authorize anticipation that is often enough confirmed and verified by its consequences, by what we can characterize as a satisfying *"nectar!"* encounter. Human beings, gardeners, naturalists, perfume makers, and creators of new, fragrant floral species, have addressed themselves to flowers as physical objects with some success, and have studied the various roles of the events that contribute to the active conditions of the ingression of the object "odor." They have confirmed the well-founded nature of what is presupposed by the distinction between the flower, as a physical object, and the flower as a habit of percipient experience: the flower responds for the habit, and, by

paying it due attention, we can find even more in it that what it offers to an insect. Yet it is the ambition proper to chemists to succeed in defining, and then to synthesize an "object" common to human beings and butterflies, a molecule whose presence plays a determinant role both for what we call "odor" and for the detection attested by the butterfly's flight.

Such an achievement would have no meaning independent of the physical object, "fragrant flower," from which perfume makers have long since learned under what conditions the "principle" could be extracted in a way that could conserve it as an active condition for the ingression of the sense-object "odor." Nor would it have a meaning independent of that organ we baptize "nose," or else of insects that could be assimilated to "detectors." Scientific objects presuppose physical objects, at the same time as they declare themselves to be independent of the percipient event. They are indeed at the summit of the logical ascending hierarchy, in which each member presupposes the lower type, and whose base designates sense-objects. However, this hierarchy can be stated in another way, and this is where the risk of the bifurcation of nature resides.

Quite obviously, there is a relation of contemporaneity between the scientific enterprise and the great theme of bifurcation: both confer a crucial importance upon entities that declare themselves independent of the percipient event. For Whitehead, however, this feature is not the privilege of a truth that would finally be "objective," naked, beyond the motley trappings of sense-experience. It is because it reflects an achievement, a "reliable foothold" of the mind in nature, that the scientific object is important, and as such this object may reveal its usual association with the general theme of the bifurcation of nature, and be together with, or placed "in the same boat" as, other objects, particularly sense- and physical objects. Just as "sense-objects" testify to a world in which their ingression signifies, in a way that is sufficiently regular to be reliable, a physical object that is worth paying attention to, certain physical objects testify to a world in which it is worthwhile to vary their situations, to extract the factors that play a role in this situation as "active conditions," in order to set the spotlight on them. This is not always the case, far from it: a chirping bird can be described as a function of the various roles played by the events that contribute to its chirping, but it will always be events (nightfall, the approach of a female or of an intruder) that presuppose a bird that is quite alive and involved in its business. No experimenter has succeeded in "extracting" from the bird the "active principle" of the ingression of the sonorous objects for which its situation is the active condition, but only in identifying and imitating these objects, in describing their roles for other birds.

The great theme of the bifurcation of nature is thus not the statement of a general truth that could be confirmed by experimentation. It marks the forgetting of what constitutes the value of experimental achievement: "here," nature has offered a new kind of reliable foothold to the "mind." It is this forgetting that allows it to be said that scientific objects "explain" sense-appearances or constitute their hidden objective truth. The scientific object is then no longer the respondent required by the experimental foothold, but explains what we perceive in general, in a way that claims to be independent of all perception.

For Whitehead, then, the molecule obviously does not explain the event "smelling that odor" which it accompanies. Yet its privilege is twofold. On the one hand, it has a permanence that the event in question lacks. Each time I uncork a jar containing a solution of synthetic vanilla, I will smell once again that odor that resembles that of vanilla. On the other, unlike "natural" vanilla, extracted from pods, synthetic vanilla can be described and produced without reference to the sense-object "odor," and therefore imposes itself as associated with a vast multiplicity of events and objects to which the type of attention designated by our sense organs is not appropriate. The privilege of synthetic vanilla is not that of explanation but of abstraction; and unlike the abstraction of perfume makers, which succeeds in extracting an active principle from vanilla pods, this is not an abstraction with regard to the physical object. When I note, "*Yes, that's about the same smell,*" I celebrate the relative success of the set of risky abstractions employed by the practice of synthetic chemistry, which presupposes the ingression, in these events we call "chemical reactions," of those actors with differentiated roles we call "molecules."

The molecule of synthetic vanilla is "really" in nature, but it does not explain nature: what is abstract can never explain what is concrete. It is abstraction that must be explained. The molecule has no meaning independent of nature, independent of the various types of events in which it makes ingression. Precisely because it seems self-sufficient, its definition exhibits its abstraction, exhibits the rare achievement constituted by the definition of scientific objects, the possibility of relating to them what we are aware of, of bracketing or leaving aside the percipient event.

Undoubtedly molecules and electrons are abstractions. But then so is Cleopatra's Needle. The concrete facts are the events themselves [. . .] *to be an abstraction does not mean that an entity is nothing. It merely means that its existence is only one factor of a more concrete element of nature. So an electron is abstract because you cannot wipe out the whole structure of events and yet retain the electron in existence. In the same*

way the grin on the cat is abstract; and the molecule is really in the event in the same sense as the grin is really on the cat's face (CN, 171).

Sense-objects, as soon as they are defined as "what" we perceive, "that sound," "that smell," which we recognize "quite apart" from the passage of nature, are abstractions. Here, abstraction implies what are called the sense-organs, but it refers to the ultimate authority constituted by the mind, in its guise of the extraction of what is perceived, separated from the event we are aware of in perception. And abstraction is, of course, not arbitrary: it indicates a foothold that is generally reliable, and in this sense its respondent must be a "fact" of nature. To be sure, both the discernible and the discerned differ from animal species to animal species, but each time they constitute a wager with regard to what matters, with regard to that whose neglect entails the death penalty. And the modes of abstraction, the conveyance of certain sense-objects by others, testify to the importance of the abstraction constituted by the perceptual object, that Cleopatra's Needle, for instance, with which I would collide, to my prejudice, if I reduced it to a simple visual image.

Likewise, the successful abstraction constituted by molecules implies the modes of detection made possible by laboratory instruments, and refers to an experimental tradition, which may be as rich in presuppositions, imagination, and technical, economic, and intellectual ingredients as we may wish, but in a way that defines as what really matters the production of a mode of abstraction independent of the percipient event. Yet abstraction is not arbitrary in this case, either. It has nothing to do with the abstraction proposed by metaphysical statements that seize upon scientific abstractions as if they were achievements due to them, generalizing them in a way that testifies to their indifference to the risk of failure. What matters is the vocation of the experimental apparatus, that independently of which it would not exist: to produce a testimony to the role of scientific objects that must accept and resist the risks of controversy, to be recognized as benefiting from a "reliable foothold," authorizing the abstraction which, in return, will make scientific objects in nature its respondents.

In a way, the one that is proper to experimental innovation, the definition of scientific objects is thus situated in the tradition of the definition of physical objects, verifying the reliable character of perceptual objects. And the latter, deriving from the habits of experience, designate in turn the trials associated with biological evolution. The only difference is that the risk and importance at stake do not concern the well-foundedness of a perception or the survival of a living being. What is at stake is the survival of the "mind's" new "foothold," and of what is supposed to be that foothold's respondent in nature, that is, the twofold passage to existence of the ex-

perimental apparatus *qua* reliable, and of the object to which it refers *qua* belonging to nature, or to what we have to do with in awareness.

Some scientific objects exist, however, whose importance for the concept of nature is of a different type. In their case, the work of mathematical physics, which organizes and articulates a set of different experimental testimonies to relate them to an object, winds up approaching the properly conceptual problem of what Whitehead has called "ingression." The point is then no longer to identify a molecule as a function of the "role" it plays, but to describe this role itself in terms of activity. When "laws of nature" are enunciated, exhibiting the "passage of nature" in an explicit way, objects are defined as inseparable from the events in which they make ingression, whereas events are defined as "being what they are," because molecules, atoms, and electrons "are what they are."

But in science we have found out that when we know all about the adventures amid events of material physical objects and of scientific objects we have most of the relevant information which will enable us to predict the conditions under which we shall perceive sense-objects in specific situations [. . .] *The analysis of these adventures makes us aware of another character of events, namely their characters as fields of activity which determine the subsequent events to which they will pass on the objects situated in them. We express these fields of activity in terms of gravitational, electromagnetic, or chemical forces and attractions* (CN, 170).

The gravitational force proposed by Newton created a scandal because it "acted at a distance." It might, perhaps, have sufficed to impose the abandonment of localization, of the idea that the primordial scientific characterization of the sun, and of the earth as well, is to be where they are. The historical fact is that physicists have instead made do with a mathematical formulation that affirms, at the same time, that a massive body is defined by precise spatial coordinates, and that nevertheless other bodies, defined by their mass and their distance, intervene in the calculation of its motion, a double definition that does without the notions of adventure or activity. As far as "chemical forces" are concerned, they, in contrast, were deduced from the activity of a mixture of reagents as such. Yet their activity is attributed not to a scientific object, a particular molecule, but to a global mixture. Chemical forces say nothing about the molecule's adventures; they qualify "relations" specific to two chemical reagents, but this qualification, since it is independent of the localization of the molecules, does not allow this localization to be questioned. Since Faraday, however, the electromagnetic field has exhibited properties irreducible to those of a force "between" two charged and localized bodies. And, as a second surprise, this field has, since the end of the nineteenth century, been associated

with the presence of electrons in motion, capable of being localized and endowed with a charge. In this case, the problem is fully deployed at last. The mode of ingression of the scientific object "electron" questions localization as a primordial, "objective" property.

A scientific object such as a definite electron is a systematic correlation of the characters of all events throughout all nature [. . .] *The electron is not merely where its charge is. The charge is the quantitative character of certain events due to the ingression of the electron into nature* [. . .] *the electron is the systematic way in which all events are modified as the expression of its ingression* [. . .] *We may if we please term the mere charge the electron. But then another name is required for the scientific object which is the full entity which concerns science, and which I have called the electron* (CN, 158–159).

Unlike its charge, the electron does not let itself be localized, any more that the cat whose Carrollian grin I can see. Not only does mathematical physics thus testify against the ideal of simple localization associated with the theme of the bifurcation of nature, but it confirms what ingression obliges us to think: the event is what it is because the object is what it is, and objects are what they are because events are what they are.

The conception which most fully expresses the character of nature is that of each event as modified by the ingression of each electron into nature (CN, 160).

To be sure, the dream of some physicists would have been, and still is today, to deduce the particle from the field, and to make it a local expression of the field. Why, for instance, could we not think of the particle in the manner of a wave wrinkling the ocean? It would of course have a behavior all its own, but we would also know that it is nothing other than a local expression of the ocean, than this aspect "here" of the ocean "everywhere." Many physicists have tried their hand at this, and field theory today is inhabited by this hypothesis when it suggests turning particles into "excited modes" of a field that is, in principle, coextensive with the universe. At the risk of making the possibility of talking about an electron depend on the existence of the detector that is to localize it. Just as the wave affects us, the particles would affect our detectors. But the only "objective reality" would be the ocean or the field, which explains without being explained.

If Whitehead were among us today, perhaps he would have objected: the wave is what it is because the ocean is what it is, to be sure, but doesn't this metaphor incite us to formulate the question of ingression in a way that is too unilateral? Perhaps the ocean is expressed in the wave, but how does the presence of the wave affect the ocean? The challenge

associated with the concept of ingression would thus be to succeed in formulating the idea that the ocean, too, is what it is because the wave is what it is. This is the kind of objection some physicists oppose to contemporary field theory: the adventure of the particle in a field should not be reducible to a mode of expression of that field.

In other words, the question of how to represent the electron's ingression into its field, favored by Whitehead, has indeed become generalized, but the only sure point in this experimental and intellectual adventure today is the abandonment of the master idea of the bifurcation of nature: the identification of the relation of situation with that of localization. For the rest, the least one can say is that this representation is still under construction, trying to take into consideration and order the multiple and ever-proliferating aspects of the "field of activity" in an attempt to define the type of attention that is due to them.

The fact that mathematical physics intervenes to deprive the doctrines of the bifurcation of nature of their most prestigious support is, of course, utterly crucial. The fact that, for a century, physicists have been confronted by the question of how to articulate local and delocalized, particle and field, are just as important. Yet it would be catastrophic to transform the testimony contributed by mathematical physics today into an authority. This is so whether it be to "rectify" the Whiteheadian notion of ingression, that is, to affirm triumphantly that the particle is indeed what it is because the field is what it is, but that, contrary to what Whitehead thought, the converse is not true; or whether it is to acknowledge that he was right. Even if mathematical physics one day came to confirm what ingression affirms, if some day a theory should be formulated that really does articulate particles and fields, that is, redefines these two physico-mathematical notions on the basis of the problem of their articulation, this would be a matter of science, not of the generality Whitehead called "ingression." For this new theory, whatever may be its interest, would deal exclusively with situations where the ideal of the exactness of mathematical physics is relevant, in particular the ideal definitions of point and instant. Such a theory would still be an abstraction: there is no such thing as nature at an instant, all events have a duration, and all durations have a thickness.

The temptation to identify the Whiteheadian event with the mathematico-physical notion of a field must therefore be resisted, even if they both share certain features, precisely those features that have prevailed against good sense, first with the scandalous notion of forces "acting at a distance," then of a field that is irreducible to these forces. Correlatively, the general concept of ingression cannot by any means be

assimilated to the problem raised by the inseparability between electron and field. However complicated it may be, for physicists, to construct what nature obliges them to accept, the very possibility of defining this complication reveals the abstraction of the definitions whose relations are to be articulated.

The aim of science is to seek the simplest explanations of complex facts. We are apt to fall into the error of thinking that the facts are simple because simplicity is the goal of our quest. The guiding motto in the life of every natural philosopher should be, Seek simplicity and distrust it (CN, 163).

Thinking under the Constraint of Creativity

IN ALL PHILOSOPHICAL THEORY there is an ultimate which is actual in virtue of its accidents. It is only then capable of characterization through its accidental embodiments, and apart from these accidents is devoid of actuality. In the philosophy of organism this ultimate is termed "creativity" (PR, 7).

The ultimate, in Whitehead's sense, cannot, as we recall, by any means be identified with any form of transcendence, in the sense that any kind of sublime or intrinsically unthinkable character would be attached to it. If there is transcendence, it is a "technical" transcendence. The ultimate is not the judge of problems and opinions, but is relative to the way the problem is framed and therefore liable to change along with the problem. This is why the Whiteheadian ultimate, whatever its avatars, will always communicate with what is "without reason," not in the sense of the point of collapse of all reason but in the sense in which every reason is a solution to a problem and cannot therefore transcend the "fact" that the problem was raised in this way and not otherwise, communicating with some determinate designation of the ultimate, and not with another.

The Concept of Nature and *Science and the Modern World* already designated distinct "ultimates," presupposed by all the statements corresponding to the problematic space that was to be constructed. In *The Concept of Nature,* the ultimate designated the "mind," so that to nature had to correspond a concept that would make it the "respondent" called upon by each of the "accidental incarnations" of the mind, that is, by each of the footholds that succeeded, implying, at least at a first approximation, that due attention has been paid to this nature. In Whitehead's

first metaphysical construction, at the end of *Science and the Modern World,* God appeared as the ultimate, the foundation of all concrete actuality, in the double sense of the ultimate arbitrary and of the ultimate principle of determination: that which is presupposed by any construction of reason, and which we therefore cannot define in terms of reason. The ultimate irrationality constituted by the existence of God was to be followed, in *Process and Reality,* by what is neither rational nor irrational as such, but has, with regard to this opposition, the neutrality of metaphysics. Whitehead baptizes this ultimate as "creativity."

Creativity was already presupposed by the definition of speculative philosophy: it is what is presupposed and exhibited by the "imaginative rationality" associated with the "flight of experience." As an ultimate, however, it is not what will justify speculative philosophy, nor what the latter must think. As is attested by *Process and Reality*'s subtitle, "An Essay in Cosmology," it is the cosmos that is henceforth to be conceived. Not, however—especially not—in the form of a "cosmic creativity." If Whitehead had made the reference to the cosmos his "ultimate," it would have constituted a genuine transcendence, that in the name of which the actual may be judged, that which demands that thought recognize the difference between cosmos and chaos, and place itself in the service of cosmos. The ultimate would then constitute, behind the scenes, the secret of reality. This is why "creativity" is above all not "cosmic." In itself, it has no discriminating character. With regard to it, everything that happens must be said in the same mode: that of the accident.

Creativity thus has the neutrality of metaphysics, and obliges the philosophy that defines it as "ultimate" to take the risk that is proper to empiricism: to affirm all that exists, all that happens, all that is created *qua* irreducible to a reason higher than the decision to exist, to happen in this and in no other way, to affirm and exhibit such-and-such a value and no other. And if everything we have to deal with at each instant, including ourselves, must be said to be first and foremost an "accident" of creativity, all that is to be thought, including the hypothesis that we have to do with a cosmos, must first be greeted with equanimity as a new and interesting exemplification of creativity.

"Creativity" is another rendering of the Aristotelian "matter," and of the modern "neutral stuff." But it is divested of the notion of passive receptivity, either of "form," or of external relations; it is the pure notion of the activity conditioned by the objective immortality of the actual world—a world which is never the same twice, though always with the stable element of divine ordering. Creativity is without a character of its own in exactly the same sense in which the Aristotelian "matter" is without a

character of its own. It is that ultimate notion of the highest generality at the base of actuality. It cannot be characterized, because all characters are more special than itself. But creativity is always found under conditions, and described as conditional (PR, 31).

In a sense, creativity as Whitehead has just presented it seems to prolong the "eternal activity" that *Science and the Modern World* had placed under the banner of a triple envisagement. Yet the framing of the problem has changed. Eternal activity presented itself as an abstraction, and as such was qualified by what it should give meaning to, by the possibilities of value, in contrast to the actuality that is value. Creativity, for its part, is bereft of qualifications. In particular, we must avoid associating it with an underlying impulse. Its "activity" has nothing to do with the power of a river, that always ends up destroying the banks that imprison it. Creativity is "activity," but activity affirms, simultaneously and inseparably, the river and the banks without which there would be no river, whether it overflows or not.

However, it will be objected, creativity, according to Whitehead, can only be described as "conditioned." And "condition" is never very far from "explication": the condition then allows the deduction of what is subject to it. The river's course can be deduced from the relief of its banks. If, however, in addition, what conditions creativity always entails "the stable element of divine ordering," how can we avoid reducing creativity to some kind of more or less tractable material, whereas intelligibility, legitimacy, rationality, and right refer to what conditions it?

Let us leave the "divine ordering" in indeterminacy for the moment, and limit ourselves to noting that it does not contradict what, in *The Concept of Nature,* was called "passage," both of nature and experience. Let us affirm right off the bat that the entire conceptual construction proposed by the metaphysical scheme of *Process and Reality* is an answer to this problem: to express in concepts what conditions creativity, in a mode that does not make the condition a principle of explanation; to create the concepts that make what is produced under a condition converge with what produces its own reason. And it is this problem that Whitehead begins to solve when he selects the terms that will intervene in the first of the four series of categories included in the scheme, the "category of the ultimate." This selection is risky, for these terms, if they came to communicate in a privileged way with specialized characteristics, including those that correspond to the cosmic hypothesis, would seal the defeat of the attempt.

"Creativity," "many," "one" are the ultimate notions involved in the meaning of the synonymous terms. These three notions complete the

Category of the Ultimate and are presupposed in all the more special categories.

The term "one" does not stand for "the integral number one," *which is a complex special notion. It stands for the general idea underlying alike the indefinite article* "a *or* an," *and the definite article* "the," *and the demonstratives* "this *or* that," *and the relatives* "which *or* what *or* how." *It stands for the singularity of an entity. The term "many" presupposes the term "one," and the term "one" presupposes the term "many." The term "many" conveys the notion of "disjunctive diversity"; this notion is an essential element in the concept of "being." There are many "beings" in disjunctive diversity* [. . .]

"Creativity" is the principle of novelty. An actual occasion is a novel entity diverse from any entity in the "many" which it unifies [. . .]

"Together" is a generic term covering the various special ways in which various sorts of entity are "together" in any one actual occasion. Thus "together" presupposes the notions "creativity," "many," "one," "identity," and "diversity." The ultimate metaphysical principle is the advance from disjunction to conjunction, creating a novel entity other than the entities given in disjunction. The novel entity is at once the togetherness of the "many" which it finds, and also it is one among the disjunctive "many" which it leaves; it is a novel entity, disjunctively among the many entities which it synthesizes. The many become one, and are increased by one [. . .]

Thus the "production of novel togetherness" is the ultimate notion embodied in the term "concrescence." These ultimate notions of "production of novelty" and of "concrete togetherness" are inexplicable either in terms of higher universals or in terms of the components participating in the concrescence. The analysis of the components abstracts from the concrescence. The sole appeal is to intuition (PR, 21–22).

As we can see, Whitehead proceeds with the greatest precaution. The creator of axioms is at work, demanding as general as possible an articulation between the primary terms of his system, those that are presupposed by metaphysical statements and will never be explained by them. At this stage, therefore, it is impossible to explain, for every explanation will imply the primary terms. It is nevertheless possible to accentuate, and, in the present case, to accentuate the contrast between the many, placed under the banner of disjunction, and the one, placed under the banner of conjunction (togetherness). The fact that we have to deal with primary terms means that one will never ask why there is a conjunction, that is, how it comes about that the many can become one. What will have to be characterized is the "how," which Whitehead relates directly, *qua* "relative," to the "one." This certainly indicates that

there cannot be a general "how," that is, that every conjunction is, as such, "new."

Creativity is the principle of novelty, and all the primary terms Whitehead articulates have the vocation of giving meaning to this definition. Thus, the fact that the many are characterized by disjunction excludes a "together" that would explain the unity of their synthesis, or their togetherness produced by the new unity. And the fact that the latter, once produced, should be added to the many in the mode of disjunction excludes any dominant position of the synthesis with regard to what it synthesizes. Every synthesis is "new," and everything must be started all over again every time.

Novelty thus has no need of being defended: it is generic. All production, whatever it is, constitutes, by the same token as any other, an "accidental incarnation" of creativity. The "many" have become "one" in this way, and not otherwise. No higher universal will allow the resorption of this "fact." In other words, creativity, which is neutral, is not to be celebrated. On the contrary, it induces a rather peculiar humor. For both the "calculating thought" denounced by Heidegger as "forgetfulness of being" and its own meditative remembrance are testimonies to creativity. Creativity is just as much affirmed by the reasoning that Bergson condemns as the spatializing negation of duration as by the harmonic intuition of that duration.

Whiteheadian humor is formidable, and deeply annoying, because it cancels any dramaturgy of thought. In his terms, when Bergson writes, for instance, that "time is an invention or it is nothing at all," the invention of this grandiose alternative should be saluted as new, as a purely Bergsonian "cry." In contrast, the possibility of taking the alternative itself seriously, or of conferring upon it the ability to close the philosophical debate, may be ignored. It is the cry itself that bears witness and is added to the terms of the opposition it articulates. What Bergson calls "invention" is not creativity but creativity "on condition," the conditions that correspond to the specialized categories designating what he calls "intuition."

The fact that creativity, as an ultimate, cannot be conceived as such, that we can never characterize it "in itself" but always on condition, that we can describe it only as conditioned: all this by no means constitutes "limits of thought" in the sense that the term "limit" would imply the possibility of transgression or the evocation of *The One for whom such limits do not exist.* What is unknowable is unknown, and any pretended transgression will constitute another accidental "creature" of creativity, conditioned by the terms that define the limit that, in this case, matters. Instead of a limit, it is fitting to speak of an obliging constraint. As an ultimate, creativity obliges the thinker to affirm that all the verbs used,

"to characterize," "to have to deal with," "to describe," themselves presuppose creativity. As soon as a situation matters enough for us to be tempted to see in it an "example of creativity," the generic terms "one" and "many" will have been specified, and thought will be conditioned by specialized categories, those that matter for this situation. Once again, this specification is not a screen, and does not separate us from an inaccessible truth. It is neither a source of nostalgia nor an object of denunciation, nor, above all, the instrument of a critique of the fallacious character of all explanation. If creativity intervened as a critical instrument, it would be characterized, enabling such-and-such a position to be defended against such-and-such another, whereas both are just as much its accidents. As a constraint, the neutrality of creativity thus has as its first effect to turn us away from the temptation always constituted for thinkers by a position that affirms itself to be "neutral," defining them as "not participating" in a debate, which they will then be able to adjudicate. In Whitehead's speculative philosophy, there is no position of adjudicator, or else every "creature of creativity" is the carrying out of an adjudication, and adjudicators themselves are the one as unifying the many.

Correlatively, creativity obliges us to think of conditions. There is not, nor can there be, any tension between creativity and conditioning, nor even between novelty and explanation, for novelty is inseparable from the way something is explained by something, the way a being is conditioned by what Whitehead often calls its "social environment." Nothing is more alien to Whitehead than the strategy of Descartes' "radical doubt," which undertakes to make a clean sweep of any inference that could be recognized as fictive or mendacious but forgets all that is presupposed by this very approach, including the fact that his decision and his research presuppose, at the very least, words to formulate the legitimate reasons to reject, one after the other, everything that is no longer to be believed. Descartes' doubt requires the specialized social environment which, most creatively, it undertakes to judge.

The data upon which the subject passes judgment are themselves components conditioning the character of the judging subject. It follows that any presupposition as to the character of the experiencing subject also implies a general presupposition as to the social environment providing the display for that subject. In other words, a species of subject requires a species of data as its preliminary phase of concrescence [. . .] *The species of data requisite for the presumed judging subject presupposes an environment of a certain social character* (PR, 203).

You think you are free to interrogate what you have to deal with, like a judge demanding an explanation. And you come to ask yourself if the

explanations you constantly, and successfully, provide refer to a world whose reasons it renders explicit, or if they merely refer to your own interpretations. But it is you yourself who, by interpreting, produce yourself from this world which you interpret. And the very act that produces you *qua* judging bears witness, by itself, to the fact that the disjunct many you gather under the unity of a judgment were indeed (socially) liable to turn you into a judge.

"I'm the one who asks the questions": in fact, however, it is already the dissolved self of the one being questioned that speaks through his torturer (DR, 255).

Perhaps it is the experimental sciences that constitute the most dramatic example of this co-creation between judgment and social environment. It is in reference to these sciences that Kant celebrated as the "Copernican revolution" the "discovery" that it was not fitting to learn from nature as if it was a master, that the knowing subject was rather submitting it to the question, like a judge interrogating a prisoner according to the categories that allow offense and delinquent to be identified. Kant might well have believed he had stabilized the relations between subject and object, giving the sciences their horizon, that of a monotonous elucidation of the way in which the object is indeed, once and for all, determined by the categories of the subject, but scientists cannot, any more than judges or torturers, prevent their decree from being taken up into new adventures. Whatever may be the reasons mobilized by the judgment, or the claims that accompany it, these reasons and these claims will come to be added to the indefinitely proliferating cohort of the many available for a new unification, conditioning a new creation. The very justifications they will invoke in order to claim to transcend apparent diversity toward what conditions that diversity will condition the creative advance, adding to the disparate diversity that will constitute the problematic terrain for new syntheses.

In fact, Kant was extremely creative: he had to be, in order to turn Galileo, the prototype of the scientist who has carried out his Copernican revolution, into a "knowing subject" testifying to a generality. If there is one case that exhibits itself a vector of novelty, it is indeed the case of the twofold "production" of a Galileo discovering that he is capable of telling the difference between fiction and scientific statement, and a new type of data ("experimental") that confers this capacity upon him. The production of Galileo the experimenter, and of his data, is inseparable from the new environment constituted, as soon as they are produced, by "the experimental laboratory," that is, in this case the new type of apparatus that conditions this double production, the inclined plane that transforms the way a ball rolls into an ("objective") argument judging away what is then nothing

more than Aristotle's "opinion." And the entire experimental adventure of physics, even if it can be placed under the banner of the ever-renewed "face-to-face" between "judge" and "nature," which this judge summons to answer his questions, also narrates the fabrication of the increasingly sophisticated social environments required by that face-to-face. In so-called high energy physics, the face-to-face in question needs years of preparation and demands a meticulous articulation between an indefinite number of instruments, the creation of languages intermediary between "data" and theories, the mobilization of hundreds of researchers, the invention of arguments suitable for convincing politicians and inspiring the public, and so on. Yet the most elementary judgment, the one carried out by a (conditioned) pigeon when it pecks at circular forms and not the others, also requires an indefinite and disparate number of stabilized relations, a hybrid social environment intermingling the pigeons and the psychologists who undertake to pass judgment on the pigeon's capacity to judge.

As a principle of novelty, creativity does not impose any limit on explanation but merely suggests that explanation not forget the social environment that simultaneously conditions it, and conditions what is proposed as explicable. This does not mean, however, that an explanation is "relative" in the sad sense in which relativism announces the ironic and disenchanted equivalence of all explanations, held to be equally fictitious. For this would still be to appeal—only to declare it impossible—to an ideal that cannot be stated by any language obliged by creativity, and that does not communicate with any actual experience. What is unknowable is unknown. "The only appeal," Whitehead concludes, "is to intuition": not to Bergsonian intuition, which resists intellectual constructions, but to the constructed intuition I have characterized as the "flight of experience." Yet this flight also exemplifies creativity in a way that is conditioned by a "social environment": the environment constituted by the scheme, and the demands for coherence to which it responds.

In *Process and Reality,* the call to intuition will be produced in a way that counteracts any confusion between creativity as an ultimate relative to the problem articulated by the scheme, and any romantic figure of emergent, spontaneous creativity "without a reason." To avoid such confusion, it is not enough, as I have emphasized, to affirm that creativity is always conditioned. The image of a pipe channeling the great creative flow, adjusting its emergent activity in a passive way, would still be possible. We must affirm the impossibility of distinguishing between passive conditioning and active production. And it is this affirmation that will be sounded by the "ontological principle," taking up the paradigmatic rationalist cry: "nothing happens without a reason!"

According to the ontological principle there is nothing which floats into the world from nowhere (PR, 244).

Officially, the ontological principle corresponds, within the scheme, to the eighteenth category of explanation. As its name indicates, however, it is by no means one category among others, and it receives, moreover, a large number of distinct formulations in the course of the text, conferring on it a differently accentuated relevance each time. The version I have just cited is opposed to the appeal to a "spontaneity" that comes from nowhere. This is also the aim of the formulation that appears in the eighteenth category, but this time it forbids, in a more explicit way, that creativity or any other generic principle be invoked by way of a reason.

This ontological principle means that actual entities are the only reasons; so that to search for a reason is to search for one or more actual entities (PR, 24).

Since an actual entity is always "this" entity, no reason can have a general value. The ontological principle thus implies that there is no stable difference between explanation and description, but only distinctions dealing with what matters, and with the environments required by what matters. Correlatively, other formulations emphasize, for their part, that what must "be explained" exhaustively in terms of "its" reasons, that is, the way in which "the many become one," is a "decision."

The ontological principle asserts the relativity of decision; whereby every decision expresses the relation of the actual thing, for which a decision is made, to an actual thing by which that decision is made (PR, 43).

The ontological principle declares that every decision is referable to one or more actual entities, because in separation from actual entitles there is nothing, merely nonentity—"The rest is silence" (PR, 43).

As a "category of explanation," the ontological principle may seem to concern "our" search for reasons, asking us not to refer to generalities, to abstractions, to anything that claims to transcend "this" world—or, at least, not to do so in ignorance of the fact that in no case will we arrive, in this way, "beyond empirical appearances." The ontological principle thus takes on an "epistemological" import, demanding that every explanation exhibit itself as a testimony to creativity, that is, to this extent, contingent, accidental, and properly "democratic." No explanation can lay claim to a higher instance of justification than what makes a difference for it, what matters for it. Yet when it comes to "decision," the principle takes on a truly ontological import, an import that will deprive the rationalist cry "nothing is without a reason" of all its epistemological power, as it will oppose any possibility of establishing communication

between "reason" and "submission to a deduction." Everything has a reason, but everything is equally decision. Rationality is usually celebrated, or criticized, because it intends to subject everything that happens to reasons. Whitehead is fully rationalist, but he takes this rationality to the limit, and therefore makes it change its nature.

To ensure the divorce between reason and submission, however, it is not enough for reason and explanation to divorce, as is shown by the Leibnizian operation: the divorce between reason and human explanation did not prevent Leibniz from invoking a God to make reason and explanation converge. The divorce will be actual, however, if among the reasons that make a being exist, there appears the decision of this being itself. Among the actual beings that are the only reasons, the ontological principle will include the actual entity that "decides for itself": thus, and not otherwise.

The ontological principle can be expressed as: All real togetherness is togetherness in the formal constitution of an actuality (PR, 32).

For Whitehead, "reason" does not communicate with "submission." A being becomes determined by determining its reasons: such is the meaning of what Whitehead calls "the formal constitution of an actuality." Whereas the notion of submission implies that the "reasons" have in themselves the power of determining what they will be the reason of, this power, according to the ontological principle, must itself have a reason: only in the process of constitution of the entity of which they will be reasons are reasons articulated, "put together," in a way that confers upon each of them its determinate power.

Let us think, for instance, of a judge's decision. This decision must be based on multiple considerations, and yet the judge is anything but submissive, for it is the decision itself that has assembled these considerations, and presented them in a way that makes the judgment their consequence. Yet this does not make judge's decision arbitrary. It is "conditioned," but it is the judgment itself that determines the relation between the decision and what conditions it. Whitehead can therefore accept that everything has a reason, that nothing happens without a reason, that nothing "comes from nowhere": yet all the while specifying that, of course, nothing is a reason independently of the way in which a decision produces it *qua* the reason for this decision or this actuality.

Every decision is thus explained by its reasons, and as such it exemplifies creativity, the way in which "the many become one." Creativity has then nothing to do with a form of "supplement of soul," of "subjective evaluation" of what is given, adding a touch of originality to what already holds together. It is presupposed by this very "holding-together."

Nothing holds together independently of a decision, which is played over again each time with regard to the "how," with regard to the way it will hold together.

The ontological principle will place the rational pole of Whitehead's system under a constraint that forbids it any facility, any shortcut to the transcendence of what might claim to be indubitable, to go without saying, holding together by itself, without risk, without adventure. The principle will demand reasons, while forbidding that the slightest authority be conferred upon reasons. If you're looking for a reason, you are looking for an actual element that conditions creativity, but don't forget that the very way this element conditions creativity affirms this creativity just as much, for it is the decision through which what has produced itself as "one" has produced its reasons that has determined the actual role played by this conditioning.

In a sense, an actual occasion is causa sui (PR, 86).

Neither creativity as an ultimate, nor the ontological principle have assumed their full import independently of the process of writing *Process and Reality.* The smart reader, who has not forgotten the "divine ordering," a stable element conditioning creativity, will have already understood that this process of determination must have involved the question of God. If the ontological principle is to take on its full import, God will have to figure among the actual entities "that are the only reasons," for otherwise he would be metaphysically useless. What is more, like all other entities, God will have to "make a difference" without having the power to define the difference he will make. In fact, in the conceptual adventure constituted by the writing of *Process and Reality,* the ontological principle is inseparable from the construction of the concept of God, until the final decision, in which Whitehead will propose a divine experience that would be, in its way, the "consequence" of the constitutive decisions of the (other) actual entities. We will return to this point, but let us emphasize already that without this decision, an eventual "divine ordering" would have constituted an infraction against the ontological principle. In order not to correspond to a form of transcendental "togetherness," this ordering will have to have actual entities as its reasons; that is, these entities will have to be reasons for God. But this is possible only if God himself becomes, producing these reasons as "his" reasons.

Perhaps we can imagine Whitehead at the moment when he came to conceive of this major philosophico-theological innovation. He did not—and this is a constant element of his position—want any part of a creator God. Moreover, when he decided to make creativity the "ultimate" af-

firmed by his system, he had already been forced to abandon a possibility he had envisaged in 1926, in *Religion in the Making:* that of God as a "principle," "ideal entity," or "formative element," that is, an authority bereft of individuality, a name for an aspect of the creative advance of the world. Since creativity is the ultimate, none of its aspects can any longer be named, that is, privileged. God can no longer be a principle, and if Whitehead needs him, he will have to be conceived, like everything else, as an "accident of creativity."

Whitehead had thus arrived at the hypothesis, which subsists in many pages of *Process and Reality,* that God might be actual and not temporal, required as a "reason" for the actuality of new possibilities, and identified as such with the eternal envisagement of all ideal possibilities. Suddenly, however, he decided to take the decisive step.

Opposed elements stand to each other in mutual requirement. In their unity, they inhibit or contrast. God and the World stand to each other in this opposed requirement. God is the infinite ground of all mentality. The World is the multiplicity of finites, actualities seeking a perfected unity. Neither God, nor the World, reaches static completion. Both are in the grip of the ultimate metaphysical ground, the creative advance into novelty (PR, 348–349).

The very cry of coherence resounds here. Retroactively—for it is always retroactively that a position is sensed as incoherent—the nontemporal God who has just disappeared can indeed be diagnosed as a poor solution; a strong-arm move or an *ad hoc* response, since this God has no other role than to respond to a difficulty. For Whitehead, an actual but nontemporal God had no other "reason" than to act as a remedy for the confrontation between two kinds of reason: those designated by the ontological principle, referring to the actuality of decisions already taken, "objectively immortal," and those that imply a reference to what is possible, without which our experience could never be interpreted adequately but merely reduced—even if, according to Spinoza, such reduction is the path to wisdom. Coherence, however, is little concerned with wisdom, but it demands the reciprocal presupposition: if we need God, he must need us. The "decision" to endow God with a consequent nature will thus mark the passage from the voluntarist postulate to the positive articulation of reasons: confrontation becomes reciprocal presupposition.

God can no more be conceived independently of the World than the World can be conceived independently of Him. A moment of properly Whiteheadian decision, but also of perplexity: will everything have to be rewritten?

In the subsequent discussion, "actual entity" will be taken to mean a conditioned actual entity of the temporal world, unless God is expressly included in the discussion. The term "actual occasion" will always exclude God from its scope (PR, 88).

This "warning" brutally concludes a discussion (inserted late) of how the divine works. In the history of philosophical literature, it probably constitutes the most discrete signal of a major conceptual upheaval ever emitted. Whitehead refused to get bored, and no doubt renounced verifying every occurrence of the term "actual entity." For some of them, from now on, can bear just as much upon God as upon actual occasions, since God is no longer merely a nontemporal accident of creativity, but, like all other entities, a "creature of creativity." Rather than proceeding to an exhaustive sorting process, Whitehead thus limited himself, where it was important, to pointing out explicitly that God is included in the statement. In the other cases, "by default," it is better for the reader to think exclusively of the entities that belong to the "temporal world."

Not until the fifth part of *Process and Reality* will Whitehead deploy—freely, poetically, almost prophetically—what his own creation has made of him. We will get to this, but here the point was, first and foremost, to point out a spectacular example of creation, carried out under the twofold constraint of the ontological principle and the appetite for coherence. To make God a creature may constitute a revolutionary idea for theology. Here, this mutation imposes itself as a consequence of Whiteheadian speculative working conditions. It may be why Whitehead did not show off this innovation. Instead, we can easily imagine Whitehead perplexed, wondering whether he will be forced to intervene and make corrections every time God appears in a textual stratum dating from the time when he was a "nontemporal accident," then making up his mind in accordance with the "formula" of Melville's Bartleby, celebrated by Deleuze: *"I would prefer not to."*

Each original is a powerful, solitary Figure that overflows every explainable form: it launches flaming bolts of expression, which mark the obstinacy of a thought without images, of a question without an answer, of a logic that is extreme and without rationality. Figures of life and of knowledge, they know something inexpressible, they live with something unfathomable. There is nothing general about them, and they are not particular: they escape knowledge and defy psychology. Even the words they pronounce overflow the general laws of the language ("the presuppositions"), as much as the simple particulars of speech, since they are like the vestiges or the projections of an original, unique, primary language, and they carry all of language to the limit of silence and of music.

There is nothing particular about Bartleby, nothing general either: he is an Original (CC, 106).

An original never wants to be an original, unless we are to plunge into the masquerade of Oedipal conflicts. Creators should never wish themselves to be "creative," although it is sad to have to repeat this sometimes. It is probable that Whitehead-who-refused-to-be-bored, but who, every time he tried to explain himself, made the proliferation of *"yes, but"* and *"but then"* start up again at some point of his explanation, did not want to "defy psychology" or impose upon his reader the terror of an unfathomable experience. If he did not judge it to be important, or perhaps even desirable, to take his reader by the hand, it is probably because what he first wanted to communicate was the contrast between what "can" be communicated and what speculative language, because it must produce the generalizations which every specialized language does without, "must" communicate: the impossibility of ever defining what one "means."

The point is that every proposition refers to a universe exhibiting some general systematic metaphysical character. Apart from this background, the separate entities which go to form the proposition, and the proposition as a whole, are without determinate character. Nothing has been defined, because every definite entity requires a systematic universe to supply its requisite status. Thus every proposition proposing a fact must, in its complete analysis, propose the general character of the universe required for that fact (PR, 11).

It pertains to speculative propositions to "make us feel" what is, in fact, a generality that bears upon every proposition: it pertains to them to propose not a fact, opinion, state of affairs, or even a vision of the world, but the universe required by thought itself producing that proposition, a universe whose general, systematic character is none other than the very experience of thought as a "leap," productive both of the thinker and of what is to be thought. Speculative propositions do not designate a world that exists prior to them, but, quite the contrary, they bring into existence what Deleuze and Guattari call an "image of thought," in the sense that such an image coincides with a "thought without images," that is, without a stopping point that makes words and things communicate in a satisfactory way. No longer the thought of someone about something, but thought experiencing itself as anonymous, as if produced not by the thinker but by its very movement.

According to Deleuze and Guattari, an "image of thought" is not described but is produced in the very movement in which thought exceeds the images that fixate it, to itself become production-sensation, an

"abstract machine" producing concepts that inhabit what is, in itself, neither thought nor thinkable, the "plane of immanence."

The plane is like a desert that concepts populate without dividing up. The only regions of the plane are concepts themselves, but the plane is all that holds them together. The plane has no other regions than the tribes populating and moving around on it. It is the plane that carries out conceptual linkages with ever-increasing connections, and it is concepts that carry out the populating of the plane on an always renewed and variable curve.

The plane of immanence is not a concept that is or can be thought but rather the image of thought, the image thought gives itself of what it means to think, to make use of thought, to find one's bearings in thought [. . .] *The image of thought implies a strict division between fact and right: what pertains to thought as such must be distinguished from contingent features of the brain or historical opinions* (QPh, 39–40).

"Creativity" would thus be a Whiteheadian name for what Deleuze and Guattari call the "plane of immanence." On this plane, an event as seemingly important as a radical mutation of the concept of God is merely a new linkage, of which Whitehead is not the author but the operator, who does not share his writing between before and after, but merely imposes the emergence of new folds in the ever-variable curvature of a chapter, a paragraph, or even a sentence. While the insertions populating the text multiply, thought loses the certainty of its images to experience what it means to think.

If philosophy begins with the creation of concepts, the plane of immanence must be considered prephilosophical, not in the way in which one concept may refer to others, but in the way concepts themselves refer to a non-conceptual comprehension (QPh, 43).

The plane of immanence designates the imperative—that which insists and demands to be thought by the philosopher, but of which the philosopher is not in any way the creator. The plane does not command concepts, and does not connect them without them making its curvature vary. This is why the appropriate name for the plane of immanence that haunts the philosophers' thought may mutate. It is not that what haunts them has "changed," like one changes one's mind; rather, the zone of connection that constituted the site for this name has been brutally introverted, imposing new operations of linkage, causing the emergence of new accentuations of what is insistent. Thus, we can affirm that "organism" was the first name for the Whiteheadian plane of immanence. It designates the moment in which "what pertains to thought" can be called "trust." The organism is inseparable from the diagnosis of the modern

epoch, insofar as Whitehead trusted that this epoch was to pass away, and it does indeed carry out a new distribution of fact and right. Trust is inseparable from thought as such: it does not refer to an opinion, whether historical or subjective. Nor will it ever be reducible to some functioning of the brain. The brain will never explain trust, for every explanation, by the brain or by something else, first of all manifests in principle the trust of those who have undertaken to explain. Trust can be killed by disqualifying words, by dominant opinions, by the accidents of life, but trust itself is not accidental. Trust is on the side of "right," of what is presupposed by every explanation.

The organism is a way of expressing this trust, because it conjugates existence and success. Nothing is "no matter what," secondary, epiphenomenal, superstructure, anecdotal, with regard to something more general. Everything that exists, in the sense that we can undertake to describe it, or even to explain it, has first, and prior to any explanation, succeeded in existing. Our trust exhibits the success to which we owe our existence as thinking beings, a success that nothing guarantees. It has the character of a wager, but a wager with nothing beyond it, on the basis of which it could be dissected. The organism expresses the task of thought: not to judge, but to learn to appreciate.

And perhaps because it is the organism that made him a creative thinker, Whitehead will continue, in the first layers of the writing of *Process and Reality,* to baptize his philosophy as a "philosophy of the organism." Yet the concepts that, since April 1925, have come to populate the plane have produced what the distribution between fact and right known as "organism" could not realize. The plane has taken on a new and highly curious curvature. Henceforth, it must be impossible for the distribution between fact and right to communicate with a judgment, even if the latter merely affirms the wager of "trust." The speculative movement must refer every right to an accident of creativity, and celebrate every fact together with all that it implies, as the conditioning of the creativity to which it bears witness.

Retroactively, the organism could not be conceived independently of the universe that it required, but it required it in a way that was merely implicative and incapable of explaining itself. It may equip the thought of an educator inventing new ways to address thirsty young souls that school threatens to turn into professionals. All that matters then are the "good habits" to be acquired, those that should enable students to resist the dead abstractions that come from the disciplines. But Whitehead could not describe in terms of habits his own soul, which undertook to awaken the habit of aesthetic enjoyment in his students' souls. Nor could

he apprehend these souls in the process of becoming, in the terms in which he taught them to apprehend the living, limited, and intolerant values that a factory succeeds in perpetuating. He could only trust them and teach them to trust, to dare the leap whose possibility the organism does not state. In short, Whitehead, for whom education was an adventure, could no more describe himself in terms of his educational project than Epimenides the Cretan could classify himself within the set of lying Cretans he defined. The concept of organism was meant to answer the challenge of education, but it was mute about why this challenge would make itself felt at all.

"Habit" was, however, never to assume a pejorative sense in Whitehead. Above all, the criticism to be addressed to the professional must not be confused with a critique of habits. And if the organism, because its inspiration is biological and proposes "keeping its hold" as what is at stake, is inadequate, it is because it does not seem to leave any other alternative in the face of professional habits than the project of making them "lose their hold," which is certainly quite tempting but ultimately catastrophic, for this is exactly what professionals think: if they "let go" of their abstractions, they are lost. Yet the "applications" to which the speculative scheme appeals are, again and again, questions of the habits to be adopted. The difference is that these habits exhibit a trust that is no longer paradigmatically that of an educator, but may be that of a participant in the adventure of mathematics, in which the art of an imagination obliged by coherence is cultivated as such.

In this case, *Process and Reality* demands, in the minor key of an (original) habit to be acquired, what Deleuze and Guattari describe in a somewhat dizzying way.

Thought "merely" demands motion that can be taken to infinity [. . .] *What defines infinite motion is a coming and going, because it does not go toward a destination without already turning back on itself* [. . .] *It is not, however, a fusion, but a reversibility, an immediate, perpetual, instantaneous exchange, a bolt of lightning. Infinite motion is twofold, and there is only a fold from one to the other. It is in this sense that it is said that thinking and being are one and the same thing. Or rather, motion is not the image of thought without also being the matter of thought. When the thought of Thales leaps forth, it returns like water. When the thought of Heraclitus becomes* polemos, *it is fire that returns upon it* [. . .] *the plane of immanence has two faces, like Perseus and like Nature, like* Physis *and like* Nous. *This is why there are always a great many motions implicated in one another, folded up within one another, insofar as the return of one instantaneously relaunches another one, in such a way that*

the plane of immanence never stops weaving itself, like a gigantic shuttle (QPh, 40–41).

Each concept calls for a leap of the imagination, but none of them is privileged, none can be aroused or experienced without other motions surging forth, each of which may be at the starting point and/or at the point of arrival. Every starting point is contingent. Every point of arrival is a stage on the way. All that counts is the incessant weaving between the two faces that this motion brings into existence as it weaves itself: Thought and Nature, *Nous* and *Physis*. It perhaps belongs to Whitehead to have made reversibility—the immediate, perpetual, instantaneous exchange between what thought intends and its return upon itself, its becoming "matter for thought"—the very thing that is to be inhabited, of which the habit is to be acquired . . . by applying the scheme. The twofold wager of a transformation of the sciences of nature and of the aims of education has thus not disappeared, but constitutes one starting point, or else one point of arrival among others, for a motion that brings into existence simultaneously a "Physis" in which thought matters, and a "Thought" that no longer belongs to the thinker.

The ancient doctrine according to which "no one crosses the same river twice" is generalized. No thinker thinks twice (PR, 29).

Simultaneous contraction and dilation: if no thinker thinks twice, the two faces we call *Nous* or *Physis* are required to think a thought. God and the world, both under the sway of the gigantic shuttle of the creative advance.

However, is it possible to inhabit a thought in the form of a Möbius strip, where one cannot explore one face without finding oneself on the other? Can one live in the world of Escher, in which two hands draw one another? Anglo-Saxon humor: it is a habit to be acquired, it suffices not to allow oneself to be trapped by the paradox of thought thinking itself. For this paradox, inducing the experience of a dizzying, uninhabitable *mise en abyme,* by no means indicates a limit of thought colliding with itself, but is due to the inadequate abstraction of a reflection that claims to grasp its proper conditions. The fact that my itinerary takes me back to the other face, which it presupposed but to which it could not accede, the fact that my hand draws what is drawing it, are only dizzying for the third party I have introduced surreptitiously: the person who contemplates the opposing faces of the Möbius strip, or sees those two hands, each of which is drawing what draws it. There is no third party in Whitehead's system: there is only itinerary, flight, movements, or gestures. And the thinking experimentation on thought corresponds, again and again, to this pragmatic question: what difference in experience could be produced,

what new regime of habit could be experienced if, in principle, I affirm that everything that pertains to thought, all the rights it claims, all the hopes it nourishes, are so many testimonies to the "reality" that is its problem, so many requisites for the construction of the solution to this problem?

The fact that habits to be acquired come up for discussion again and again is all the more important in that it is easy to confuse a philosophy that defines creativity as an ultimate, with a philosophy inhabited by what is attested by the adventure of creators. The image of Whiteheadian thought is not the image of Deleuzian thought. It does not place the creator under the banner of an imperative that irresistibly distances him from all the others, all those who are satisfied by opinion, by the securities of routine, by words as they are proposed to our perceptions: a world that is most often reassuring, saturated with cultural artifacts that orient us, giving rise to due attention without our even having to be aware of it. This is why Whitehead, the thinker of creativity, will never celebrate the creator in the heroic mode of radical risk and extreme solitude to which Deleuze sometimes yields.

Philosophy, science and art want us to tear open the firmament and dive into chaos. Only at this cost will we vanquish it. And I have thrice crossed the Acheron, victorious. The philosopher, the scientist and the artist seem to return from the land of the dead (QPh, 190).

From a Whiteheadian viewpoint, the proposition is slightly exaggerated. Creatures confronting chaos take for granted a respectable number of conditions: the endurance proper to electromagnetic regularities, to molecules, to cellular metabolism, and finally to the body, which, even when submitted to terrible trials, must maintain certain crucial habits . . . Not to mention an entire inheritance of things and items of knowledge, some of the components of which will eventually be subverted, but never all of them at the same time. Not to forget, finally, all that creators have learned that makes them able to "dive" without being swallowed. A dive cannot be improvised, but demands equipment. Unlike those who may happen to "sink" into chaos, creators are those who know that what they experience "matters," and that they will be able to recount something of what has happened to them, that is to come back . . . even from the land of the dead.

Madness, the destruction of consensus, the terrible and somber truth of chaos from which opinion tries to defend itself thus do not belong to the image of Whiteheadian thought. The fact that "I" is "another" will not, by its proximity to madness, make vibrate the thought of the man for whom "no thinker thinks twice" is perfectly inhabitable, for whom

the "I" is an interesting habit, an ingredient of the link ceaselessly recreated by each act of thought, by each new distribution produced between thinkers and what they think.

Correlatively, it is not so much the problem of risk as it is the importance of the fact that one can "come back from the land of the dead" that will establish itself as what obliges us to think. What matters is not that a mathematician like Cantor "went mad"—such things happen—but that, unlike Cantor, other mathematicians have been able to find in their community those who have accepted to inhabit the new possibilities that they have brought back. The solitude and misunderstanding to which the creator may give rise are not a privileged testimony to creativity, for creativity also acts as a constraint when it comes to thinking about rejection, misunderstanding, or else recuperation, the way in which what the solitary adventure has "brought back" from chaos is transformed into a consensual "acquisition."

As a mathematician, Whitehead was never tempted by the iconoclastic gesture that intends to make a clean sweep of the past. He knows the extent to which mathematical creation requires the past, even when it may present itself as a break. And the very adventure of writing *Process and Reality* introduces a process that exhibits the difference between intuition, or vision in the sense that Plato associated it with mathematical truth, and the work of fashioning concepts. Such concepts demand a leap of the imagination, of course, but none of them "make an image," none holds all by itself, because all are "conditioned" by a process that produces its own trials, the questions that never cease reviving it, making new demands surge forth that impose a problem where an answer had been formulated. This process does not require the figure of a creator or a visionary, confronting what exceeds the categories of thought or of perceptions, but testifies instead to a practice to which philosophers may owe their existence. When Whitehead defined the philosophical tradition as a series of "footnotes" to the text of Plato (PR, 39), what he designated was indeed a tradition that requires reading and writing. What are philosophers other than those who read other philosophers? But they read them in a way that will communicate with writing, that will make them add, subtract, modify, and insert the "footnotes" that make a text mutate. Including, for instance, a little note "interpreting" the contemplative vision of ideas as a "leap of imagination."

When Whitehead makes creativity the ultimate, therefore, he does not particularly celebrate creators. Thinking under the constraint of creativity has nothing to do with a heroic adventure, and creativity demands nothing. Whatever we do, whether we live in the most reproducible of

routines or whether we cross the Acheron, each moment of our lives is equally and impartially the creature of creativity. But also, and perhaps above all, thinking under the constraint of creativity has nothing to do with the vision of a "creative cosmos" that might, as such, become the subject of our descriptions. Such a vision is not banished, of course, but it does not belong to the register of applications of Whitehead's scheme, of his "verification," for the visionary flight then seems to be the only thing that matters, and not its landing "for renewed observation rendered acute by rational interpretation" (PR, 5). Similarly, Whitehead's God, as an accident of creativity, cannot be isolated from the adventure of the successive revisions of the categoreal scheme that will end up in its definition. It neither expresses nor calls for a vision. It is the scheme, including God, that calls for verification, experimentation of the difference it produces upon our habits of thought, including those that are religious.

When he committed himself to the adventure of a speculative cosmology, then, Whitehead did not abandon the definition of philosophy he had proposed in *Science and the Modern World:* if we cannot think without abstraction, it is important to revise our *modes* of abstraction. And, for instance, it is important not to abstract creators from the equipment on which they cannot help but rely when they undertake to cross the Acheron, and from the equipment they provide themselves in order to be able to "come back."

Perhaps, then, humor is one of the ways of characterizing the transformation Whitehead intends to produce upon our habits. The habits of professionals are bereft of humor: what questions their mode of abstraction is either judged to be insignificant—reduced to ignorance of what is demanded by science or rationality—or as endangering civilization—many scientists speak of a "rise in irrationality" when they sense that the questioning of what they propose can no longer be rejected by a shrug of the shoulders. The habits to be acquired, what creativity appeals to as a constraint, would be, compared to professional habits, like a wall of dry stones compared to a cement wall. Cement rejects the interstices in which the weed grows that will one day crack it open. The dry stones, for their part, can of course be displaced, and the weed that displaces them might certainly be tempted to abstract from the fact that without the stone the earth in which it grows would not have held. But the wall of dry stones is not defined against the interstices; the latter belong to it just as much as the stones that make it up. Thinking what imposes itself as obvious under the constraint of creativity, Whitehead's wager is that we can learn modes of abstraction that enable us to celebrate together both the obsti-

nate stones and the interstices that will transform them into preconditions for what will eventually displace them.

Thus, Whitehead will avoid all the words susceptible of disqualifying the type of order presupposed by opinion. The charge of contempt in these words, the absence of humor, and the somewhat misplaced heroism they suggest, add nothing to the risk taken by thinkers when it comes to *this* particular thinker who, at *this* instant, has produced *this* proposition that turns *this* opinion into that whose point is to experience its abandonment. Yet these words risk insulting the world, the immense, heterogeneous population of "opinions" that endure in the interwoven and precarious relations of "trust," or mutual presupposition. In the process, they risk cementing against them an alliance that will confirm that the historical truth they propose is unbearable to self-righteous people or to the "system."

Yet the point is not to condemn those by whom the scandal arrives. The words they use are not theirs, but those suggested to them by the modes of abstraction of our time. Whiteheadian humor, demoralizing the great oppositions, the binary choices between adherence and polemic, is addressed to our time, simultaneously dominated by professional modes of judgment and fascinated by heroic protests. This humor does not attack, for the point is not to know who the good guys and who the bad guys are. The point, impersonal and cosmological, is that of the "trick of evil."

Each task of creation is a social effort, employing the whole universe. Each novel actuality is a new partner adding a new condition. Every new condition can be absorbed into additional fullness of attainment. On the other hand, each condition is exclusive, intolerant of diversities; except in so far as it find itself in a web of conditions which convert its exclusions into contrasts. A new actuality may appear in the wrong society, amid which its claims to efficacy act mainly as inhibitions. Then a weary task is set for creative function, by an epoch of new creations to remove the inhibition. Insistence on birth at the wrong season is the trick of evil. In other words, the novel fact may throw back, inhibit, and delay. But the advance, when it does arrive, will be richer in content, more fully conditioned, and more stable. For in its objective efficacy an actual entity can only inhibit by reason of its alternative positive contribution (PR, 223).

My readers have now been warned. If they are fascinated by the heroic grandeur of refusal, and despise compromises; if they deplore the fact that the radical demands of every new position are recuperated by what was supposed to be subverted; if "to deconstruct" is a goal in itself for them, and scandalizing self-righteous people is a testimony to truth; if they oppose the pure to the impure, the authentic to the artificial; if they

cannot understand how the most "unplatonic" of philosophers situated himself as a "footnote" to the text of Plato . . . let them close this book. Never will they see celebrated in it the power of a truth that is verified by the destruction of false pretenders. They will therefore find in it only disappointments and reasons for contempt.

Actuality between Physics and the Divine

IF WE SUBSTITUTE THE TERM "energy" for the concept of a quantitative emotional intensity, and the term "form of energy" for the concept of "specific form of feeling," and remember that in physics "vector" means definite transmission from elsewhere, we see that this metaphysical description of the simplest elements in the constitution of actual entities agrees absolutely with the general principles according to which the notions of modern physics are framed (PR, 116).

When it comes to *Process and Reality,* we must be careful at every step. The absolute agreement with the general principles associated with modern physics that is claimed here refers us directly to an ancient hope, ceaselessly reinvented. In *The Concept of Nature,* Whitehead proposed the relation between the electron and its field as a simplified but important example of the ingression of an object into an event. The inseparability of the electron, characterized by scalar quantities such as energy, mass, and charge, and its field (vectorial and delocalized) constituted a typical example of the way physics itself denounces the misplaced concreteness of simple localization. Whitehead, at the time he was writing his Gifford lectures, the text of which, somewhat modified, would finally become *Process and Reality,* apparently thought he could maintain the terms of an agreement he had long envisaged.

It is on the basis of this obstinate continuity that one can understand the importance of the conceptual transformation I set forth in the context of the case of the missing shade of blue. This transformation could certainly not be inspired by the physicists' electron, for no situation studied by physics seems to require the ingression of unrealized eternal

objects. The flight of speculative experience, reassembling the notion of actuality from top to bottom, had as its starting point the extremely sophisticated actual entities with regard to which the question of consciousness arises—for instance, philosophers asking the question of the hiatus in the color chart of blues. Yet Whitehead intends to produce an interpretation applicable both to thinkers and to electrons, to novelty and to conformity. The electron must therefore be dragged into the upheaval provoked by the thinker. The question can then be asked of whether the upheaval in question has finally destroyed what Whitehead attributed so much value to: the agreement of his metaphysics with the general principles of physics. The text is silent on this subject: Whitehead allowed the passages expressing the importance of this agreement to remain, but, here as elsewhere, he seems to have left it up to his readers to "fill in the blanks," at their own risks and perils.

Rather curiously, a path can indeed be constructed that maintains, throughout all its conceptual transformations, Whitehead's ambition of a metaphysics that generalizes physics while bringing to light the partial and selective character of its successes. This path, which I shall take, will proceed by way of what is called "second generation" quantum formalism, which many commentators have affirmed raises "explicitly metaphysical" problems, concerning the very existence of a "reality in itself." In fact, Whitehead's silence with regard to the speculations inspired by quantum formalism, which however began at the very time when he was writing *Process and Reality,* is rather remarkable. He never commented on the theses according to which it is henceforth impossible to speak of "objective" physical reality, definable independently of the measuring operation, even independently of the mind of the person for whom measurement has significance. We can understand this if we recall that he did not like to criticize, for the great alternatives deployed by these speculations are so many variations on the theme of the bifurcation of nature. Either this bifurcation is solved by an absolute triumph of the "secondary qualities" over the "primary qualities"—this is what is celebrated by those who have opted for the radical negation all "physical reality," the only "object" of quantum mechanics then designating the results of the measurements that we choose to carry out. Or else it is resolved by the apotheosis of dualism: quantum reality would then be theoretically well defined, *via* Schrödinger's equation, for instance, but defined *qua* unknowable, with knowledge, for its part, referring to us, to our "becoming aware," assimilated to so many fragmentations of what cannot be fragmented, producing answers that are purely relative to the mode of questioning that conditions them. Or else again, as Whitehead predicted would be the case every

time mind and nature intervened together, speculation makes the whole powder magazine explode, since measurement would then signify the conscious mind's power of direct intervention upon matter.

Here it is important to recall that the distinction Whitehead makes as early as *Science and the Modern World,* between the mental and the physical, does not offer any analogy with what the interpreters of quantum mechanics distinguish as "mind" and "matter." Whiteheadian "physical feeling" includes the feelings of everything that has obtained immortal objectivity, be it an "electronic" occasion or an occasional thought. In other words, we must accept that among what constitutes a heritage for the electronic occasion, there are also the physicist's feelings. The difference between the practice of the physicist and that of the psychologist consists in the fact that an electronic occasion cannot create a relevant integration between what the enduring society to which it belongs offers to its feeling, and what is felt about it by the physicist. Unlike the relation of double capture constituted, for instance, by an operation of taming or seduction, the relation of knowledge between physicist and electron designates its terms as dominated by mutually incompatible modes of feeling. The stubborn endurance of the material societies that maintain the thread of their conformity has nothing to do with the physicists' doubts. But the physicists' questions, taking advantage of this conformity, just as much ignore what could testify to "mental pole" of the occasions whose "routes" they study, relegating, if need be, what escapes this conformity to the unknowable: it is impossible to explain why an unstable radioactive nucleus breaks apart at one moment rather than at another.

The privilege of physics, when it comes to understanding the "physical pole," that is, the first phase of a process of concrescence, thus does not designate physics as a "science of matter" as opposed to mind. Instead, it can be claimed that it designates physics as highly selective, since the articulation it risks between experimental research and mathematical creation makes full use of the conformity of inheritance of the processes it selects. The inventive, relevant, and rigorous definition of physico-mathematical notions is what interested Whitehead in *The Concept of Nature,* and it is the adventure of this definition that I will use as a guide to unfold the radical nature of the transformation that will affect the "physical pole" of the actual entity. This transformation will enable creativity to be defined as the ultimate, actuality as *causa sui,* and the ontological principle as restrictive. First, however, we must begin (again) with the beginning, that is, what Whitehead was thinking in 1927.

The first phase is the phase of pure reception of the actual world in its guise of objective datum for aesthetic synthesis. In this phase there is the

mere reception of the actual world as a multiplicity of private centres of feeling, implicated in a nexus of mutual presupposition. The feelings are felt as belonging to the external centres, and are not absorbed into the private immediacy. The second stage is governed by the private ideal, gradually shaped in the process itself; whereby the many feelings, derivatively felt as alien, are transformed into a unity of aesthetic appreciation immediately felt as private [. . .] *in the language of physical science, the "scalar" form overwhelms the original "vector" form: the origins become subordinate to the individual experience. The vector form is not lost, but is submerged as the foundation of the scalar superstructure* (PR, 212).

In physics, forces and fields, which are vectorial, designate the interdependent character of a reality, in which everything that occurs refers to something else. As for energy, it is a scalar quantity, and is required by measurement: every act of measure implies an exchange of energy. In the correspondences Whitehead is suggesting here, physics, confronted by diverse experimental situations and the power and constraints of mathematics, has therefore created a distinction that can be generalized. In this generalization, what physics characterizes as an individual, defined as localizable by the role it plays in energetic exchanges, will designate "individuals *qua* feeling their world," or concrescence *qua* taking a determinate position with regard to what it has received or, more precisely, coming into existence *qua* this taking of position, and therefore inseparable from what has become "their" world.

The characterization of concrescence that results from this generalization could have been produced by the author of *Science and the Modern World,* or more precisely by the author who, having finished writing *Science and Modern World,* would have undertaken to render explicit the aspects left in the dark, and in particular the link between realization as "a gathering of things in the unity of a prehension"—a cavalier generalization of Berkeley's thesis—and the theme of the atomic nature of the world of becoming. Such a link had only been risked from the viewpoint of the envisagement of eternal objects, that is, from the viewpoint of possibilities of value, whereas the question of "event-related processes," and hence of value, had remained unexplored. All that remained would be to conceive of that value, the way the "scalar" form "overwhelms" the initial "vectorial" form.

It is impossible to deal with the "physical pole" (vectorial) without dealing at the same time with the divine. For here, of course, we encounter the objection I had raised with regard to the "triple envisagement" proposed in *Science and the Modern World,* that is, the possibility of reducing Whiteheadian concrescence to what Gilles Deleuze calls "realization,"

as opposed to "actualization." To what extent is private appropriation not reducible to a selection in the midst of what is already potentially well-defined? To what extent is the contrast between "possibility of value," corresponding to an ideal situation, and "value," an actual taking of a position, not reducible to the passage to existence of a possible that lacked only existence? The term "energy" is, from this viewpoint, highly compromising. It is precisely the great success of rational dynamics to have articulated "energy" and "difference in potential" in a complete and coherent way. Every measurement is, of course, intimately linked, directly or indirectly, to an exchange in energy, but in dynamics "actual energy," as it can be measured through scalar effects, bears witness in a way that is complete and without remainder to the vectorial potential of which it is the realization. This is what makes dynamics the ideal to which physicists refer when they call themselves "realists."

To illuminate the situation as it presented itself to Whitehead in 1927, let us address another fragment from the same period of composition. Here, Whitehead comments on the selective character inherent in the process by which multiple feelings are transformed into a unique aesthetic appreciation.

Again the selection involved in the phrase "selective concrescence" is not a selection among the components of the objective content; for, by hypothesis, the objective content is a datum. The compatibilities and incompatibilities which impose the perspective, transforming the actual world into a datum, are inherent in the nature of things. Thus the selection is a selection of relevant eternal objects whereby what is a datum from without is transformed into its complete determination as a fact within. The problem which the concrescence solves is, how the main components of the objective content are to be unified in one felt content with its complex subjective form. This one felt content is the "satisfaction," whereby the actual entity is its particular individual self; to use Descartes' phrase, "requiring nothing but itself in order to exist." In the conception of the actual entity in its phase of satisfaction, the entity has attained its individual separation from other things; it has absorbed the datum, and it has not yet lost itself in the swing back to the "decision" whereby its appetition becomes an element in the data of other entities superseding it. Time has stood still—if only it could (PR, 154).

In fact, what emerges in this text is that there are two "moments" of selection. The first, which transcends the actual entity, is here relegated to the "nature of things": it is the compatibilities and the incompatibilities inherent in this nature of things that determine what the "perspective" of the concrescence will be. In other words, this perspective will concern

what is already defined as unifiable, appropriable, which corresponds to the notion of an ideal situation envisaged in *Science and the Modern World.* A certain "ordering" has taken place, incompatibilities have already been eliminated. A "datum" is proposed, and, to characterize this datum, we read elsewhere (PR, 150) of "settlement," which designates both an "establishment," an "agreement" between parties, and a "decision" solving a problem, founding a new departure. The matter is closed. In short, what the entity "finds" is not a multiplicity but a matter that is already settled, a heritage offering the "real potentiality" that the data that make it up be felt in a unified way, as a datum.

The final stage, the "decision," is how the actual entity, having attained its individual "satisfaction," thereby adds a determinate condition to the settlement for the future beyond itself. Thus the "datum" is the "decision received," and the "decision" is the "decision transmitted." Between these two decisions, received and transmitted, there lie the two stages, "process" and "satisfaction." The datum is indeterminate as regards the final satisfaction [. . .] *The actual entity, in becoming itself, also solves the question as to* what *it is to be* (PR, 150).

We have once again to deal with the problem left in suspense by the underlying eternal activity of *Science and the Modern World.* The "divine ordering," inherent in the "nature of things," corresponds to the envisagement of the "ideal situation," with regard to which entities will have to choose "by addition of the future" what they are to be. The "triple envisagement" has thus simply become the way in which God, envisaging the totality of eternal objects, settles the deal that will be allotted to the entity. It is on the basis of this deal that an entity must decide what it will be, in somewhat the same way that gamblers decide what their play will be on the basis of the cards they have been dealt, all of which are compatible with the rules of the game. Here, therefore, datum is not the singular of data, the datum of a particular feeling, to be unified with the others. The datum is the hand dealt, already characterized by a form of togetherness which the actual entity will have to appropriate.

The contrast between vector and scalar, as invented by physics, would then be what is generalized by the difference between the possibility of value and value. Before moving from this observation to the possibility of going further, whose necessity it confirms, it is appropriate to think, with Whitehead, about why this generalization seemed so promising to him.

It is first important to emphasize that we have to do here with an "imaginative rationalization," for Whitehead did not take up this contrast as such from physics. Instead, by means of the example of the electron and its field, Whitehead has given central importance to what rational

dynamics allowed to be omitted when it identified energy and potential (energy) difference, the transition from potentiality to actuality. Yet it is precisely thanks to this identification that the dynamic designation seems to designate an "objective" world defined as intrinsically measurable, explaining by itself the scalar quantities in terms of which physicists carry out their measurements. Correlatively, by accentuating the irreducible contrast between scalar description and vectorial description, Whitehead adopts a position with regard to what became a critical problem for physicists, with the quantum model of the atom proposed by Niels Bohr. Bohr's atom articulates two types of components, whose heterogeneity is now exhibited: a dynamic type of description (and therefore vectorial) of the "stationary states," and a scalar characterization of the energetic exchanges to which this atom is liable when it "changes states" in a way that dynamics cannot describe (the famous "quantum jump"). Whitehead's generalization thus does not obey physics, but has as its starting point a physics in crisis: in one way or another, physicists know that, when interrogating an atom, they can no longer recount its adventures as if they were the simple description of a well-defined being, endowed with strictly functional behavior.

In my commentary on the triple envisagement, I emphasized that its defect was that it did not inspire any appetite for the question of actuality. I was right, but this reason needs to be reformulated: Whitehead thought he knew how to solve this question, and the appetite that his text did not inspire may perhaps reflect his tranquility in this regard. He had, in fact, made the opposite choice to the one that was to be made by the physicists who, inheriting this first quantum physics, would come later to speak of a reality "indeterminate independently of measurement" (a measurement thanks to which the overly embarrassing quantum leaps were to be "overwhelmed" by the fascinating question of measurement). For Whitehead, indeterminacy by no means characterizes "reality," as opposed to the determination brought about by measurement. What we address has always already determined itself, "thus and not otherwise," as a stubborn fact. If one can speak of indeterminacy, it is in reference to the impossibility in principle, for every determinate fact, of determining how it will be taken into account; that is, in the vocabulary of *Process and Reality,* to the need for a decision with regard to the initial datum.

As far as physics is concerned, the viewpoint proposed by Whitehead is deeply relevant. If we follow him, we will say that quantum physics "does what it can," continues to decipher the regularities it can, while the new experimental apparatuses that have enabled it to "reach" atoms have entailed the loss of the deceptive limpidity of dynamics. Indeed,

these apparatuses, because they place measurement under the banner of detection, detach "scalar quantities" from their dynamic explanation. We do not demand that a measurement by detection be explained in the same terms as what it characterizes. We ask it to designate its respondent in a reliable way: it is an electron that is detected. But detection itself, a selective and finalized operation, is by no means sufficient to define the behavior of what is detected; it can only define it as responsible for its own detection. It captures scalar quantities, but these will have to be articulated with "vectorial reasons," and no longer deduced from these reasons. In other words, whereas classical dynamics might seem able to describe what the behavior of a dynamic system is "in itself," *qua* obeying well-determined interactions, the physics of detectors imposes upon physicists a difficult referral from the "consequences," attested by the apparatus, to the description of the detected entity "in itself," *formaliter* in the sense of Whitehead, for whom this referral will therefore never succeed in reestablishing deducibility.

When, in April 1925, Whitehead decided to atomize time, he was able to propose an irreducible distinction between the atomic, private character of the process of formal determination of an entity and the constructed, social, as we will say henceforth, character of all continuity. This amounts to rendering explicit why, in agreement with Bohr's atomic model, the difficult referral envisaged by the physicists is in fact impossible. A quantum leap, characterized by a difference that is energetic, that is, scalar, does not "take any time" in the physical, continuous sense of the term. As an "atomic individual event," it is indivisible, unanalyzable in terms of a succession of instants.

The actual entity is the enjoyment of a certain quantum of physical time. But the genetic process is not the temporal succession: such a view is exactly what is denied by the epochal theory of time. Each phase in the genetic process presupposes the entire quantum, and so does each feeling in each phrase [. . .] *The problem dominating the concrescence is the actualization of the quantum* in solido (PR, 283).

With this description of a "quantum" that is indivisible and yet extensive, in the sense that, as we shall see, it atomizes an extension that it presupposes and confirms, Whitehead has raised to a metaphysical power the characterization William James proposed of the specious present (a characterization that had interested Niels Bohr to the highest degree). The specious present is always evaluated from the viewpoint of its completion—it will have been of such-and-such a thickness—since every characterization "during" this interval would constitute an interference that would force the present to topple into the past. To express it in a

way that evokes relativity: concrescence in the formal sense, as long as it is not completed, as long as it has not produced its own position, corresponds to an "elsewhere." It does not belong to the past of any other entity, and no other quantity can take it into account.

Physical time makes its appearance in the "coordinate" analysis of the "satisfaction" (PR, 283).

Physical time does not matter only to our objective descriptions of the world. The latter are always social, always presupposing a twofold endurance. As Bergson said, we must wait for the sugar to melt, and this waiting implies the continuity of an articulating relation, presupposing the endurance of Bergson, who waits, and that of what he calls "sugar," which is capable of existing in a crystalline form or of testifying to its liquid existence by the sugary taste taken on by tea. Yet these descriptions require an important cosmological feature: the fact of a solidarity between the world and ourselves in the unison of "at the same time." Simultaneity testified to this solidarity in *The Concept of Nature,* and it is what perception exhibits in an abstract mode by proposing to us an external world "out there" perceived by me "here." We must also ask this solidarity for an interpretation of the relevance of physical laws and the interactions these laws involve. What Whitehead calls the coordinate analysis of satisfaction must thus ensure the adequacy of his philosophy with the unison expressed by the "at the same time," and enable the justification of the (relative) relevance of physical laws, not, once again, because physics is the "fundamental science of matter" but because it has pushed to the farthest point the risks associated with the explanation of the solidarity to be interpreted.

Science is either an important statement of systematic theory correlating observations of a common world, or is the daydream of a solitary intelligence with a taste for the daydream of publication. But it is not philosophy to vacillate from one point of view to another (PR, 329).

Coordinate analysis associates "time" and, more generically, "extension" not with objectification in general but with the way an undivided satisfaction will be divided by what will become its consequences, with a particular aspect of that objectification. In terms of "coordinate division," the "position occupied" by an entity is considered (is the object of a feeling) apart from how it is occupied. This is reflected by the adjective "coordinate," which evokes a homogeneous characterization, the situation of each element being entirely defined by its relation to the others. What an entity has undivided enjoyment of is thus felt in an abstract, impartial mode as the "situation" of that entity, defined by its relations to other equally situated entities.

When we divide the satisfaction coordinately, we do not find feelings which are separate, but feelings which might be separate (PR, 284).

The adoption of a position, when it is felt in the abstract mode that only corresponds to the way in which the felt entity has situated itself, is placed under the twofold banner of separability and potentiality. Each entity felt in this mode is felt *qua* situated in the place where it is, and in such a way that it might have been elsewhere. *Qua* felt in the mode of coordinate analysis, entities can "propose" to or "impose" upon the entity that is feeling them a way of situating itself that ratifies its belonging to what Whitehead calls the "extensive continuum."

For Whitehead, to be situated in the midst of the extensive continuum by a unified feeling of the coordinate relations that have already been accepted and confirmed by the entities belonging to the nexus that is to be made "its world" designates the most generic social belonging. The extensive continuum itself is nothing other than the impartial articulation of all situations, that is, of all possible viewpoints on each other, an expression of the solidarity of all these viewpoints, of their belonging to a single "community." As an expression of an accepted solidarity, that is, a solidarity taken up as an ingredient of their identity by all actual entities (including, in another way, by God), the extensive continuum is "real." In itself, however, it has no power to impose itself, and exists only as it is confirmed. It is "real" only to the extent that it is prolonged, from decision to decision. Coordinate analysis objectifies the standpoint that the entity is supposed to occupy within the nexus, but it is up to this entity to ratify its situation in the continuum, that is, its belonging to the nexus. This is why Whitehead makes the continuum a "real potentiality," that is, makes it relative to an actual entity, or for an actual entity. By "atomizing" the continuum, every adoption of a position will carry out what the continuum cannot account for: the difference between the past, which it has inherited, and the future, which will inherit from it.

Actual entities atomize the extensive continuum. This continuum is in itself merely the potentiality for division; an actual entity effects this division [. . .] *with the becoming of any actual entity what was previously potential in the space-time continuum is now the primary real phase in something actual. For each process of concrescence a regional standpoint in the world, defining a limited possibility for objectifications, has been adopted. In the mere extensive continuum there is no principle to determine what regional quanta shall be atomized* [. . .] *the factors in the actual world whereby this determination is effected* [. . .] *constitute the initial phase of the "subjective aim." This initial phase is a direct derivative from*

God's primordial nature. In this function, as in every other, God is the origin of novelty, aiming at intensification (PR, 67).

In other words, if God, as is the case so far, is he who proposes to each entity its initial "datum," it is also God who proposes to it the standpoint that will characterize it, the way it will atomize the extensive continuum. Here, God is an "organ" in that, like any organ, he is associated with a social endurance and with its particular mode of canalization, but he is the organ of "novelty," aiming at intensification, for belonging to the extensive continuum as proposed by the canalization constitutes the condition for an actual occasion to provide this intensification. God is thus what makes possible an adventure marked by solidarity, a cosmological adventure, rather than the frank chaos of free-for-all positions.

In fact, Whitehead wondered whether he should attribute to the solidarity deriving from belonging to the extensive continuum the character of a metaphysical generality or that of a "social fact," as for all belonging. But we have here a limit on speculation: although it may not be metaphysically excluded for a process of concrescence to "escape" extensive social canalization, refusing the proposed socialization, it is, by contrast, impossible to imagine this case, since such a case would exclude all the stabilities presupposed and required by the intensification associated with imaginative experience.

Some general character of coordinate divisibility is probably an ultimate metaphysical character, persistent in every cosmic epoch of physical occasions [. . .] *but* [. . .] *it is difficult to draw the line distinguishing characteristics so general that we cannot conceive any alternatives, from characteristics so special that we imagine them to belong merely to our cosmic epoch. Such an epoch may be, relatively to our powers, of immeasurable extent, temporally and spatially. But in reference to the ultimate nature of things, it is a limited nexus. Beyond that nexus, entities with new relationships, unrealized in our experiences and unforeseen by our imaginations will make their appearance, introducing into the universe new types of order* (PR, 288).

Whether the extensive continuum is metaphysical or cosmic, it cannot, in any case, be confused with the spatio-temporal relations rendered explicit by physical laws. The relevance of these laws presupposes a world in which the intervals of space and time matter, while the coordinate character of situations within the extensive continuum does not, as such, provide either measurability or dimensionality. In other words, in the positive sciences we never have to do with relations that can be reduced to the consequences of "situations" in the midst of the extensive continuum. The latter is impartial articulation, whereas every position, including spatio-temporal position, is partial and refers to more specialized societies.

The various societies that designate solidarity as spatio-temporal have endurance in common. And as soon as interactions appear on the scene that articulate space and time in a specific way, we have to do with positions marked by partiality. If physical laws must involve distance, it is because all distances have henceforth ceased to be equivalent. This is what physical interaction affirms: distance matters.

Before going further, however, a pause is necessary, for contemporary physics invites us to go one step farther with regard to the relation of contrast proposed by Whitehead between the extensive continuum and physical laws. This is the opportunity for a twofold test: of the social conception Whitehead proposes of "physical reality," and of the contemporary physical scenarios that have the ambition of introducing the genesis of differentiated interactions on the basis of what would, like the extensive continuum, be the very embodiment of impartiality.

Physicists today invoke the hypothesis of a primordial field characterized by a perfect symmetry, that is, by perfect impartiality. The symmetry of scale that characterizes this field implies the generalized equivalence of all the "situations" it allows to be defined. This is certainly a physical field, inhabited by particles and interactions, but all the interactions in it have the infinite range that contemporary physics associates with particles of zero mass (like the photon): in their cases distance, that is, localization as well, does not matter. And the analogy with the extensive continuum becomes even more captivating with the reason the physicists give for the appearance of differentiated interactions, that is, also the reason why "material societies" exist. It would be the result of an event of "symmetry breaking."

Whitehead was right to trust the inventiveness proper to physics. In their own way, physicists, too, henceforth affirm that physically differentiated particles are inseparable from a "social," that is also, "epochal," fact. For "symmetry breaking" corresponds to a twofold correlative definition: that of differentiated "actors," which endure, perpetuate themselves, and preserve their identity through what happens to them, and that of the partial character of their respective behavior, of what makes a difference for them, and of what difference they make for others. Physics thus describes the appearance of "partial" actors, inseparable from the role they play in the "society" without which they would not exist. Defined in this way, these actors and their behavior can be assimilated to "collective effects," inseparable from the global event that constituted the symmetry breaking affecting the primordial field. We are very far from the localized entities that Whitehead denounced as the "fallacy of misplaced concreteness"!

Did physicists "discover" the extensive continuum? If this were the case, Whitehead's cosmology would be finished, because, for them, there

is no need of God. Symmetry breaking is explained on the basis of the same kind of laws that allow the continuum to be characterized. Impartiality seems to be able to engender partiality "by itself," that is, by "spontaneous" breaking. Physics would indeed have become "the" fundamental science, which is indeed what many who participate in this adventure believe. This is attested by the speculative presentation that turns the work of contemporary physics into the accomplishment of the Pythagorean dream, the ascent toward mathematical-aesthetic principles, the symmetries of which everything we have to deal with would be mere deformed reflections.

This speculative presentation, which transforms the adventure of physics into an epic, also allows us to grasp where the difference lies between extensive continuum and primordial field. It is no coincidence that we hear of deformed reflections. In fact, what physicists explain is by no means a "symmetry breaking" but rather a "symmetry hiding." They do not explain how impartiality can generate partiality, how a new "social fact" has come into existence. They explain how impartiality can be both preserved and hidden by a reorganization of the primordial field.

For physicists, the conservation of symmetry is just as precious as the hidden character of this conservation. Certainly, without the latter there would be neither physics nor physicists, only the impartiality of perfect symmetry, which excludes any local adventure. Yet this dramatizing tremolo is a subproduct of the physicists' adventure, where perfect symmetry was not associated with questions like "why is there something rather than a symmetrical nothing?" The issue was rather the maintaining of a successful trick, "renormalization," in situations where it should fail. Both the primordial field and the "hiding of symmetry" of which it is the theater have the primary interest of eliminating the poisoning impossibility of "renormalizing," that is, in fact, the impossibility of defining, certain interactions of finite range (or, equivalently, of defining the massive mediating particles that the physics of fields associates with these interactions). Symmetry, as both conserved and hidden, eliminates the obstacle barring the way to the technique of definition by renormalization, as it will apply to the hidden zero mass/interaction of infinite range hidden "reality."

The physicists' proposition is thus indeed an exploit: they have, one might say, succeeded in having their cake and eating it, too: in maintaining the general validity of their technique of definition, and in "explaining" the apparition of the experimentally defined interactions, which present obstacles to this technique. Yet this proposition answers a problem produced by their own formalism. What is saved is an audacious setup, inseparable from the adventure of quantum field theory.

It is not a matter of "debasing" physics. Whitehead's God also responds to problems raised by the audacious setup that constitutes the scheme. The point is to affirm the positive divergence of the adventures and their respective importance so as not to fall into the very trap to be avoided. Nature bifurcates enthusiastically, and the powder keg blows up if symmetry breaking hides the truth of its conservation. This, moreover, is what is affirmed by some speculative physicists: no longer the common world alone, but also so-called physical reality would be mere manifestations of hidden primordial symmetries . . .

The affirmation of divergence is not a defensive one. It is rather a demanding one. Facing the enticing similarity between a physical and a metaphysical construct, the point is not to suspect that physicists have trespassed and to conclude that they must be led back to their own territory, but to connect the constructs to the respective problems to which they were an answer. This demands paying due attention to "technical details," with the trust that if there is an enticing similarity it is a bit like the case of the rabbit jumping out of the magician's hat: something is concealed. Not that physicists would willfully trick us. Rather, they themselves are captivated by the beauty of the answer, and may easily forget about the requisites of their question. In this case, indeed, the question of the "instability" of the primordial field, leading to the symmetry breaking event, requires (technical detail) a definition of the field energy that allows such a question, a definition that is slightly different from the one that enters into the definition of a field. No big deal, but the possibility of symmetry breakings is now included in the description of the "primordial field." No surprise, then, that the physicists have no need for God in order to have partiality "emerging" from impartiality. Their field is not as impartial as the extensive continuum. It describes an impartial situation, *including the possibility of a partiality.*

The divergence between Whitehead's metaphysical description and so-called "physical reality" concerns aesthetic appraisals and the questions they entail. Whitehead emphasizes "novelty," the appearance of new modes of partiality, as a condition for avoiding the bifurcation of nature. Theoretical physics privileges impartiality, and creates highly inventive ways to interpret "apparent" partiality as in fact deriving from something "more fundamental," that is, more impartial.

An angry man, except when emotion has swamped other feelings, does not usually shake his fist at the universe in general. He makes a selection and knocks his neighbour down. Whereas a piece of rock impartially attracts the universe according to the law of gravitation.

The impartiality of physical science is the reason for its failure as the sole interpreter of animal behaviour. It is true that the rock falls on one

special patch of earth. This happens, because the universe in that neighbourhood is exemplifying one particular solution of a differential equation. The fist of the man is directed by emotion seeking a novel feature in the universe, namely, the collapse of his opponent (MT, 28–29).

Physics is not alone in privileging impartial explanation, making it the only "rational" path, as confirmed by the progress of knowledge. When biochemists discovered seemingly partial operations of detection among living cells and between such cells, such as activation, reception, inhibition, and so on, didn't they successfully "explain" this partiality in physico-chemical terms? It was the result of biochemical molecular interaction, nothing more! This, of course, leads straight to a bifurcating nature, at the risk of reducing biochemists themselves to a complicated concert of physico-chemical interactions.

Avoiding the bifurcation of nature thus means thinking of impartiality as a particular limit case, and the (partial) question of values as the generic question. Such was Whitehead's position when he began to write *Process and Reality.* And it is in these terms that one may think of the question of the divine "ordering." Each entity is not proposed only one situation in the midst of the extensive continuum. Its initial datum includes "possibilities of value," that is, possibilities whose realization will ensure both solidarity and partiality. When biologists identify biochemical operations with physico-chemical interactions like all the others, they are not wrong, for the molecules *in abstracto* are not different. What is different is their "role," as related to their belonging to a living society, and the questions biochemists will have to invent in order to identify them.

It is also here that we find, in a new way, the question of conceptual transformation that was to mark the composition of *Process and Reality.* The danger of the divine ordering may be related to the divergence between physics and metaphysics I have just proposed. Yet physicists construct their descriptions in such a way that what is defined as responsible for something will indeed enable an explanation of this something (which is not the case at all in other sciences!). But isn't Whitehead's God "spoon-feeding" concrescence? God, therefore, or more precisely the "nature of things" *qua* decided upon by his inexorable evaluation, would find itself to be what is primarily responsible. This divergence conceals a threatening convergence, as the link between explanation and responsibility is common. This may not be shocking when it comes to electrons or biomolecules, but the point is also to think of the partial and vehement lament of Job.

The agreement Whitehead sought with physics risks turning against him, for his conception, physical in its inspiration, admits for the moment, between the datum and the actuality, only the kind of hiatus, ulti-

mately rather poor, that he himself had noted between the vectorial field and the electron, characterized by scalar quantities: the private appropriation of the datum. A poor figure of actuality, threatening to restore the figure of a God who is the "soul" of the world, the creator of all possibility of "taking" a partial or innovative position—the position would not be taken in that case, but rather "adopted."

I must now live up to my commitment, and explore what can be contributed to this difficulty by the conceptual transformation that turned physics upside down with the quantum formalism "of the second generation."

This formalism has, in fact, exacerbated the hiatus between vectorial and scalar, by opposing the continuity of a "functional reality" to the discrete character of measurements, and introducing the need for a "choice" of measurement. It has, in other words, given measurement a "decisive role," indicating a completely new articulation between the scalar qualities issuing from this measurement, and the "vectorial reality" with regard to which measurement is carried out. And to say "decisive role" is obviously to open up the possibility of conceiving an actuality whose value might not be the ratification of a previously settled choice. To risk this possibility, however, one must, of course, be situated as close as possible to physico-mathematical technical innovation, that is, as far as possible from controversies over the interpretation of formalism.

In fact, the very possibility of attributing a "decisive role" to measurement is associated with the introduction of the new physico-mathematical notion of an "operator." Paying due attention to this notion guarantees us against any untimely intrusion of speculation, for the relevance of operators has today been generalized to all physico-mathematical laws. I will therefore concentrate on this generalization first, before introducing the singularity of quantum mechanics.

Whereas the formulation of the usual physical laws defined their object as inseparably uniting the two features necessary to satisfy physicists—observable (scalar) definition and functional (vectorial) definition—the intervention of the notion of operator in the formulation of these laws presupposes that these two features be treated separately. Scalar quantities, defining possible observations, are henceforth relative to the action of an operator on a function, which means that the "functional being" to which measurement as an operant question is addressed is not defined "in itself" in the terms of the answer. The general character of the hiatus that Whitehead emphasized is thus inscribed within the formalism itself. The "physical reality" introduced by the language of operators is no longer what is to be described "in itself," but what "answers" the operant question.

It is not surprising that controversies over the interpretation of quantum mechanics have attained a degree of sophistication that recalls medieval quarrels, for reality as "answering" translates the impossibility of guaranteeing any kind of resemblance between the answer obtained and what it was supposed to have answered. Yet the physicists who created the physics of operators, and now use it even in "classical physics," did not frame the problem in terms of resemblance. The language of operators may well mark the renunciation of the ascent from what is detected toward the reasons of the being responsible for the detection, but it enables the satisfaction of a demand that defines the value of an "answer" in physics in another way. The answer obtained must be capable of being authenticated; that is, it must not be able to be disqualified as an "artifact," *qua* produced by an operation incapable of defining what it is addressing as the "reason" for its result. In other words, what "answers" must be a "respondent," in the sense of "guarantor" of the question's relevance. What the physicists have created is thus their own way to distinguish between a "good" and a "bad" question.

What is a "good" question in the formalism of operators? In general, an operator acting on a function produces another function. But the case in which the operator qualifies as "a question that has received its respondent" is the case where the result of the operator's action on a function or vector is limited to the reproduction of the same function or vector, multiplied by a determinate numerical quantity. These particular functions or vectors are called the eigenfunctions, or eigenvectors of the operator ("eigen" in German means "own," the operator's "own functions"). As for the numerical quantities, they are called its eigenvalues. And it is to such eigenvalues that the definition of the "answers" satisfying the physicists' demands for a respondent will correspond. If what a question addresses can be represented in terms of the eigenvectors of the operator corresponding to this question, the eigenvalue obtained will be the well-determined answer to the operant question. As a result, a physical being, if it can be represented by a set of the eigenvectors of an operator, can thus be taken as guaranteeing, answering for, the adequacy of the question corresponding to that operator.

We can understand this definition of a "good" or "adequate" question in the sense that the question addressed by the operator to one of its eigenfunctions (or vectors) is addressed to something defined as susceptible of answering it without being transformed by it. This is where a speculative generalization of the physico-mathematical innovation constituted by operators becomes possible. The great interest of this innovation with regard to the hiatus verified by operators, and which Whitehead had

already speculatively generalized, is to display in an explicit way that it corresponds to a problem of knowledge: what is a good question? This may enable speculative generalization to display, in its turn, that the problem raised by metaphysics is not that of a reality to be known, but to be produced. The relation between operator and eigenvector, although it may still bear witness to the "absolute agreement" between modern physics and metaphysics, will thus nevertheless change the definition of the agreement, insisting on the divergence between the parties. In physics, the relation satisfies the physicists' demand for authenticating "good questions." In metaphysics, it might well designate satisfaction itself, the superject concluding itself from its henceforth unified heritage, having itself become the unified feeling of a unique felt content.

Such an adaptation implies that the point will be not to define the subject as "operative," as the one that raises the question, the one that decides how it will question the world, but to situate it on the side of what is to be produced: the subject is that for which the question of its own unification as a superject arises. The Whiteheadian subject thus does not operate but concludes itself from an operation which, when completed, will determine the operator, the actual world of the subject. In other words, whereas the physics of operators, as a scientific theory, designates a reality that must be interrogated in order to be known, the theory of concrescence, as a metaphysical proposition, may designate "reality" *qua* raising the question of the operations that must proceed in order for the subject to become the unified feeling of its (eigen) actual world. The "agreement" with the physics of operators will therefore be stated as: the superject is the subject that has become the "eigenfeeling" of that which, as "its actual world," has become the operator corresponding to this feeling. Correlatively, the world is not what answers to the subject, nor the respondent for what the subject "knows"; it is that which, vectorially, "operates" what the subject is to feel.

As we can see, unlike the old agreement Whitehead sought, the transposition I am attempting implies rendering explicit the difference between what satisfies the problem of knowledge and the problem of production. The physicists' satisfaction is when the system can be represented in terms of the eigenvectors of the operator that corresponds to their question. A satisfaction in Whitehead's metaphysical sense is the final co-production of the subject and "its" world in such a way that it is henceforth impossible to tell whether it is the subject's standpoint that determines the world, or if it is the site, the standpoint, that calls forth its subject. Once the process is completed, once the superject has defined itself, the operator, the henceforth actual world acting on the superject that is its "eigensubject,"

should reproduce it equal to itself, affected only with an eigenvalue. In all its details, experience is then one and individual: private.

This doctrine, that the final "satisfaction" of an actual entity is intolerant of any addition, expresses the fact that every actual entity—since it is what it is—is finally its own reason for what it omits [. . .] *In other words, indetermination has evaporated from "satisfaction"* [. . .] *thus, in another sense, each actual entity includes the universe, by reason of its determinate attitude towards every element of the universe* (PR, 45).

Final, fully determinate satisfaction is such that the "that" of *"that's what makes me feel"* is just as inseparable from the "I" of *"I feel"* as the intelligible, the intellect, and intelligence are inseparable in the philosophy of Plotinus. In the risky transposition that is guiding me, intelligence, obviously not an attribute of the intellect, could well be a name for the "eigenvalue" of the satisfaction, the scalar value that physics associates with the outcome of measurement, and which here becomes the "private," scalar response, inseparably enjoyment of "self" and of "what is felt." And this value would then be at the same time a "decision referring to what is beyond it": "what will have been felt," obstinate fact, "immortal object," one added to the many, whose consequences remain to be decided, whose effects will be "occasional," according to the role and the value that other occasions will confer upon it *qua* participating in their own satisfaction.

Yet what about the "initial phase"? How has the question of the "datum" been modified? It is here, not in the general physical language of operators, that we will finally confront the singularity of quantum mechanics. In quantum mechanics, the operators corresponding to the various measurable quantities have distinct eigenfunctions. If what is questioned can be represented in terms of the eigenfunctions of a class of operators, it is, by definition, incapable of being defined as a respondent for the questions corresponding to another class of operators. This is why physicists must define the choice of the question, that is, of the operator, as an ultimate. If the choice of a measurement, and hence of the corresponding operator, is addressed to a quantum system that is not defined in terms of the eigenvectors of that operator, we will say that the measurement "perturbs the system," is unable to designate this system as its "respondent." This means that, according to the preparation of a quantum system, it will be susceptible of giving a well-determined meaning to certain measurements, but will be "perturbed" by others.

What should we retain from this singularity? The term "perturbation" must be excluded, for it is relative to the ambition of knowledge. For physicists, it interprets the difference between a "good" question, that

has found its respondent, and a question whose answer has no determinate meaning. What we should retain is that in quantum mechanics it is impossible to make all the questions that can be raised, all the physical quantities that can be measured, converge toward a being that would be guarantor for the relevance of them all. This is why, in quantum mechanics, operators are not just one mode of representation among others but a necessity. Physicists are forced to admit not only that there is no answer without a question, but also that no question is the "right one," independently of the means they have taken (preparation) to be able to receive a determinate answer to this question and not to another one.

The "agreement" between physics and metaphysics, if it is to be renewed, will not concern only operators, which mark the taking-into-account within the very syntax of the physical theory of the hiatus that had inspired Whitehead. It will require the abandonment of the "initial datum," because this datum had the power of proposing, if not of imposing, its perspective on the entity that appropriates it, and because, in terms of knowledge, it is precisely this power that quantum entities lack. They do not dictate how they are to be questioned, but they are a respondent in the authentic sense only insofar as the person framing the question has undertaken the means to "prepare" them to answer.

Of course, when it comes to metaphysics, one might say that God is the one who "prepares" the datum, but in this case the imbalance between the power attributed to God and the insignificant character of the appropriation becomes blatant. All the more so as another possibility of thinking has appeared: that the definition of the "datum" itself, *qua* operative, coincides with the final phase, when the subject has become a superject. God is then no longer a "preparer," because "preparation" designates concrescence itself. And indeed, when Whitehead abandons the thesis according to which concrescence has as its starting point an already unified "datum," which it is up to it to appropriate, when he fully deploys the "miracle of creation," entrusting unification to concrescence itself, God will have ceased to be an "orderer," to become the "object" of a hybrid feeling that initiates concrescence. As such, his role may be compared to that of an "instigator," operating as a "lure for feeling" for the nascent concrescence.

To God's role as an instigator responds the need to differentiate between what the physicists would call "good" questions, because they have a respondent, and the goodness that necessarily qualifies God's intervention. It may well be that what is to be contrasted are two meanings of the word "relevance." Relevance as an issue is always primary. In physics, the "good question" is the relevant one, the one that is able to

designate what answers as its respondent. However, when relevance explicitly becomes a value, that value designates the way a question gives rise to its respondent. If I ask you a question at the right moment, in the right terms, with the right intonation, so that you suddenly see a way out where the situation was blocked, my question will have proved its relevance by its effects, by the way that your experience is transformed. In other words, your transformation is an answer, but it is by no means an answer "to my question": it answers for the relevance of the question as a lure that has initiated the process of which your experience is the truth.

The conceptual transformation that witnesses the disappearance of the initial datum as the source and explanation of relevant novelty may be interpreted as granting to relevance the meaning it receives in some of our most important experiences: when a gesture, a question, a suggestion give rise to their respondent without having "deserved" it. Not the frustrated insistence of the *"You ought to understand,"* but the true miracle, celebrated by the concord of two voices—*Okay, now I understand/now you understand*—in the most radical absence of guarantees that this concord designates something that is "the same." What was to be understood did not preexist the understanding, and belongs only to the person who understands.

As for the subject, it could be said that Whitehead's has passed from a rather literal interpretation of a saying of Pascal, "you would not seek me unless you had already found me," to a more complex one. In the literal sense, the subject has already found the unity it seeks to become, since its initial datum is derived from the divine ordering. But in the more complex version, "you" and "I" should not be able to be defined independently of the quest. In concrescent unification, feelings and what they aim at gradually co-determine each other, until the *"you found me!"* at the final stage, when feelings become the feelings of a subject that has become a superject, emerging from its unified feelings.

It is better to say that the feelings aim at *their subject, than to say that they* are aimed at *their subject. For the latter mode of expression removes the subject from the scope of the feeling and assigns it to an external agency. Thus the feeling would be wrongly abstracted from its own final cause. This final cause is an inherent element in the feeling, constituting the unity of that feeling. An actual entity feels as it does feel in order to be the actual entity which it is. In this way an actual entity satisfies Spinoza's notion of substance: it is* causa sui. *The creativity is not an external agency with its own ulterior purposes. All actual entities share with God this characteristic of self-causation. For this reason every actual*

entity also shares with God the characteristic of transcending all other actual entities, including God (PR, 222).

If we recall the "miracle of creation" associated with the vision of the prophet Ezekiel, we may say that this vision has now become even more risky, that is, more complete. Whitehead has abandoned any distinction between settling the datum and appropriating it. Subjective unification no longer has as an "objective" lure the unity of the datum, those skeletons that are well-prepared and quite ready to come to life again. For the miracle of creation to take place, it is a multitude of dried bones, not skeletons in good working order, that must organize themselves, dress themselves in the flesh of real, emotional beings, and gather themselves together in the unity of an innumerable army. This is why skeletons are not what inspire the prophet. When Ezekiel spoke the word as he was commanded, it was words coming from elsewhere that he repeated, whose meaning he did not possess. At first, this meaning had no other locus than the quivering of dispersed bones. It is as the miracle occurs that the prophet Ezekiel will come into existence, as the person toward whom the eyes and ears of this "one" army, that owes him its existence, are turned.

The "subjective aim," the aim of the feelings that will bring to existence the subject whose feelings they are, thus has a divine endowment as its *initium*. It is no longer the datum that testifies to God, but the initial aim or lure, which is the activation of the many feelings *qua* "aiming at." As the process of concrescence proceeds, the "initial aim" will become a "subjective aim": the aim at a subject producing itself as it determines its world. But the initial lure does not constitute a final cause. It pertains to the feelings themselves to operate, that is, to produce the subjective convergence that will make them the feelings of a superject, each of them becoming correlatively the "feeling of an aspect of the actual world," a well-determined component affirming the inseparability of the world that makes itself felt, and the superject, the "eigensubject" of this feeling.

Each temporal entity, in one sense, originates from its mental pole, analogously to God himself. It derives from God its basic conceptual aim, relevant to its actual world, yet with indeterminations awaiting its own decisions. The subjective aim, in its successive modifications, remains the unifying factor governing the successive phases of interplay between physical and conceptual feelings. These decisions are impossible for the nascent creature antecedently to the novelties in the phases of its concrescence (PR, 224).

However, a question arises. If there is no longer any "initial datum" offering a ready-made perspective on the basis of which the entity would be a mere "adoption of a position," isn't concrescence confronted by a

titanic task, in any case "unimaginable" in the sense that it would not constitute a "lure" for the imagination: to make a world on the basis of a chaos of disparate feelings?

This objection must be examined more closely. Is the multiplicity of felt data really chaotic? Or, more precisely, in what sense is it chaotic? To envisage this question, let us turn to the sixth category of explanation.

That each entity in the universe of a given concrescence can, *so far as its own nature is concerned, be implicated in that concrescence in one or other of many modes; but* in fact *it is implicated only in* one *mode: that the particular mode of implication is only rendered fully determinate by that concrescence, though it is conditioned by the correlate universe. This indetermination, rendered determinate in the real concrescence, is the meaning of "potentiality." It is a* conditioned *indetermination, and is therefore called a "real potentiality"* (PR, 23).

The multiplicity of data by no means signifies "pure chaos," a pure, disjointed multiplicity on the basis of which each concrescence would be "creation of order *ex nihilo*." We do, of course, have to deal with a "nexus," a set, no longer a datum, still less a "togetherness." The way in which there will be a "togetherness" is henceforth the very question of concrescence. Yet the determination of the unique mode of implication of each of the elements of the collection is nevertheless "conditioned" by "the correlate universe." How are we to understand this conditioning without making a datum emerge once again? How are we to differentiate between what is really "pure multiplicity," the eternal objects which, for their part, are pure potentialities, and that whose "conditioned indeterminacy" nevertheless designates a "real potentiality"?

To make explicit this real potentiality, which is neither pure disjunction nor preordered, I will allow myself a reference that interprets the universe Whitehead qualifies as "correlate" on the basis of the notion of "correlation." I must emphasize that I mean "correlation" in the physico-mathematical not the statistical sense. Here again, the difference designates the invention and imperative of relevance that belong to physics, and does not by any means characterize purely statistical reasoning.

In physics, correlations are neither calculated starting out from collected data, of the kind statistical enquiries attempt to reveal, nor from actual relations between two terms, like interactions—for instance, the force of gravity. An interaction is defined by its effects, by the determinate way in which one being (or, more precisely, an enduring society) contributes to the determination of another, or by the way the behavior of each testifies to the existence of the others. Although gravitational interaction has been called "at a distance," it implies a localized definition of the

beings that interact. In Whiteheadian terms, the interaction is "social"; it is part of the way societies that are said to "interact" integrate a stable reference to one another within their respective adventures. In contrast, correlations in physics enable an answer to questions that do not fit with this definition of physical behavior as mutually determined. Correlations may indeed be said to exist "between" the entities belonging to a population, but they have no meaning when it comes to the behavior of these entities taken individually. They only intervene when it comes to characterizing the population itself. In other words, if one followed (or, more exactly, if one could follow) the behavior of a molecule as a function of its interactions with all the others, the fact that correlations may exist between these molecules would never intervene in the calculation. The difference between correlated and noncorrelated takes on meaning for questions that can only be addressed to the population as such, because they bear upon what this population is capable of as such, not as an ensemble of interacting bodies.

Historically, correlations were introduced to characterize the effect of a hypothetical reversal of the direction of the velocity of each of the particles that constitute a population (gas). The operation of velocity reversal has been described as "creating correlations" between particles to justify the fact that this operation may result in "abnormal collective behaviour" of the population, in this case to move away from thermodynamic equilibrium instead of approaching it. More generally, the notion of correlation corresponds to the possibility of characterizing a population as such on the basis of a contrast with the most simple situation, which can be relevantly described by presupposing that what happens in one place has no definable consequence elsewhere. When this hypothesis of "generalized indifference" is relevant, one will say that the correlations are of zero intensity and range. This is the case with thermodynamic equilibrium, as is reflected by the eminent simplicity of its macroscopic description. In contrast, there is no longer any "indifference" when one speaks of "critical" situations. What occurs locally is said to have repercussions in the entire population: in the vicinity of the critical point, the range and intensity of the correlations undergo a dramatic increase.

To bring up a somewhat evocative analogy, let us take two (human) populations, apparently similar, in the sense that they allow themselves to be described similarly in terms of economic interactions, that is, exchanges defined in amnesiac terms of supply and demand. A remarkable difference might appear on the occasion of an event affecting these populations as such, like an earthquake or an invasion. To simulate this difference, however, modelizations will have to associate with their actants a

term of "memory," which has no influence on individual exchange behaviors, socially defined as amnesiac, but becomes dominant when it comes to asking how the population will respond to the test. In this sense, correlations are delocalized, since they characterize the mode of belonging to a population, not behavior that can be attributed to the members of this population. And they are abstract, in the Whiteheadian sense, in that they have no meaning in themselves but only from the viewpoint of the event that "activates" them—we could say that the event "questions" the population as such about the response it might become capable of. According to the event, correlations may remain without consequence or "make all the difference."

The fact that correlations, as physics has invented them, may give meaning to what is neither pure multiplicity nor a system unified by interactions to which each individual behavior would be subject testifies to what constitutes the strength of physics: its ability to introduce what is required by the relevance of a description. In the present case, what the description required is analogous to what the Whiteheadian crowd of initial feelings requires, in that the question raised is what this crowd will be capable of. One could therefore say that the initial phase of feelings designates the data as correlated, and even defines the divine lure as a "creator of correlations," so long as creation is understood as "activation" and especially not as creation *ex nihilo*. In fact, the multiplicity of data is rich in activatable correlations, for they constitute a "nexus," a "set of actual entities in the unity of the relatedness constituted by their prehensions of each other or—what is the same thing, conversely expressed—constituted by their objectifications in each other" (PR, 24). The correlated universe, the universe as correlated, is thus an "activated nexus."

It can thus be said that the "correlated universe" is not unified, but may be characterized by a multiplicity of "correlations," relations that are "non-localizable," for they are not defined between terms but rather by repercussions and repercussions of repercussions: a reciprocal immanence that entangles harmonies and dissonances, convergences and divergences, captures and diversions. Each element refers to others and is a reference for others, but each time in a way that is particular, possibly qualified only by the type of pattern or the "defining characteristic" that designates a "social fact."

This is why to characterize the crowd of feelings Whitehead could use the very term he had used to characterize the "initial datum": that of "real potentiality." But more than physics, it would henceforth be languages one should address to accentuate what matters here: the fact that the determination of the indeterminate is no more a simple adoption of

position with regard to a datum than it is a "demiurgic" miracle. A concrescence is no more of a "demiurge" than a statement, and no less, for every statement has as its "real potentiality" the correlated multiplicity of what could be called the "usages" that make a language, and is the producer of a use that does not preexist it as such. It can thus be said of every statement, whether it is produced in the manner of a watchword, redundant with regard to the situation, or like a poetic statement, actualizing a completely new usage, that it is conditioned by "the correlated universe" of the language, that it is the realization of a "real potentiality." But it must then be added that a language, *qua* real potentiality, raises the question of its "reality," which is not to be confused with any of its realizations. In other words, the "usages" are not cases among which one has to choose, like the various possibilities of translation presented by a dictionary. Instead, they should evoke what these possibilities are made to bring about, the perplexed and undivided nebula whence the choice emerges: *"this is the word that fits."*

Let us return to the ontological principle that will take on its full import at the end of this journey; that is, it will impose that God, who is a cause, must also be "explicable" in terms of causes. We will examine later the theological question that arises in this case, but we can show here that what has already been set aside is the threat of a God solely responsible for the partiality of an adoption of position, and therefore responsible both for "good" and for "evil."

According to the ontological principle there is nothing which floats into the world from nowhere. Everything in the actual world is referable to some actual entity. It is either transmitted from an actual entity in the past, or belongs to the subjective aim of the actual entity to whose concrescence it belongs. The subjective aim is both an example and a limitation of the ontological principle. It is an example, in that the principle is here applied to the immediacy of concrescent fact [. . .] *In another sense the subjective aim limits the ontological principle by its own autonomy. But the initial stage of its aim is an endowment which the subject inherits from the inevitable ordering of things, conceptually realized in the nature of God* [. . .] *Thus the initial stage of the aim is rooted in the nature of God, and its completion depends on the self-causation of the subject-superject. This function of God is analogous to the remorseless working of things in Greek and in Buddhist thought. The initial aim is the best for that impasse* (PR, 244).

We do not yet know how the "inevitable ordering," conceptually realized in the divine nature, communicates with the "initial aim" of a nascent subject. What we know is that this ordering does not correspond to

global calculation, from which the "best of subjective endowment" could be deduced, but is "what is best for *that* impasse." Whitehead's God is not "Leibnizian," in the sense that the global and the local do not communicate in him, for him, and through him. Reality, says Whitehead, is "incurably atomic," and God is not assigned to the service of an ideal, placing what is local in the service of some global best. In fact, such an ideal would have brought to existence the sophism Whitehead denounced as early as *Religion in the Making:* the one everyone winds up with who tries to reconcile God's assumed general will for the good with his rather curious particular applications. The biblical God does not approve of the friends who advise Job to submit his pretensions to the impenetrability of the divine plan. Whitehead's God is the envisagement of "that" impasse, Job's lament or friendly advice, and not of their role in a universal economy. And this is so, not by choice, out of respect for individual "freedom," but by the necessity of the divine mode of functioning.

The divine endowment thus corresponds to an individual possibility, not to what individuals should accomplish in the name of interests that transcend them. Here we find the concern that had led Whitehead, in *Science and the Modern World,* to introduce God as the principle of limitation: only what is actual has value, what is actually taking a position, that is, what is refusing as well. Thus and not otherwise. Whitehead modifies, rearranges, inverts the relations, but never does he blame concrete experience, including those that have been celebrated as exhibiting notions he has abandoned.

In *Science and the Modern World,* the divine limitation made the difference between the ideal and the individual. The ideal situation, insofar as it resulted from an ordering of all the eternal objects, gave no meaning to any horizon, to any possibility of bringing to existence the individual decision to be a prehension of "this," rather than of everything presupposed by "this." If there were no limitation, each occasion should have "reflected" all the other events, the whole of nature. How, then, could it be called "decision"? Decision was thus associated with the "mental pole" of an occasion, in contrast to its "physical pole," with the former "breaking off" from the latter's actual illimitability. In *Process and Reality,* the distinction between physical and mental poles has been deeply modified, since the physical pole is no longer placed under the banner of illimitability but of (correlated) multiplicity. Yet this distinction can now be generalized to God himself, and it is, as we shall see, this characterization of the divine functioning that will make it possible to coordinate the "ordering" constituted by eternal envisagement with the local character, relative to "that" impasse, of the initial divine endowment. Correlatively,

God will no longer be a principle but will have to satisfy, in his distinct way, the categoreal obligations.

In the first place, God is not to be treated as an exception to all metaphysical principles, invoked to save their collapse. He is their chief exemplification (PR, 343).

Like Whitehead himself, who reserves the fifth and last (rather brief) part of *Process and Reality* to this question, I will not try to approach the rather thorny question of the divine functioning until the end of our itinerary, after having explored what Whitehead has just created. We now leave physics behind; for the locus where the Whiteheadian concepts will have to be experienced is the one from which the demand that what exists must be the cause of itself has arisen. Not an electron, to be sure, but a thinker: Job, for instance, demanding that his "lament" be heard. It is therefore toward the adventures of consciousness that the flight of speculative experience must henceforth orient itself.

Modes of Existence, Modes of Thought

IMPORTANCE IS PRIMARILY monistic in its reference to the Universe. Importance, limited to a finite individual occasion, ceases to be important. In some sense or other, Importance is derived from the immanence of infinitude in the finite.

But Expression is founded on the finite occasion. It is the activity of finitude impressing itself on its environment. Thus it has its origin in the finite; and it represents the immanence of the finite in the multitude of its fellows beyond itself. The two together, namely Importance and Expression, are witnesses both to the monistic aspect of the universe and to its pluralistic character. Importance passes from the World as one to the World as many; whereas, Expression is the gift from the World as many to the World as one (MT, 20).

Expression, in *Modes of Thought*, actively requires the two meanings we can give it, designating subjective satisfaction as a final decision—thus and not otherwise—and as a decision for one future instead of another. It is that which will make itself felt, that which, in one way or another, will have to be taken into account. It does not, therefore, by any means designate the Leibnizian idea that a subject expresses "the" world, in the sense of being its reflection, deducible from a certain viewpoint. Whitehead's association between expression and "gift" rather brings to mind the way William James characterizes the "chance act": *Its origin is in a certain fashion negative: it escapes, and says, Hands off! coming, when it comes, as a free gift or not at all* (DD, 154). Individual satisfaction fashions its own perspective, its own divergence, and as such it will give to the world the gift of a new expression of itself, of what might perhaps make a difference.

Yet the fact that Whitehead talks about importance before talking about expression is significant. When he wrote *Modes of Thought,* he no longer had to struggle to conceive of an occasion as *causa sui,* and could therefore give meaning to its correlate: to the world dependent on an individual decision—*"Hands off!"*—which will come like a gift. Individual expression is important.

Whereas expressions refer to creativity, to the many becoming one and being increased by one, importance, for its part, refers to the Universe as "one," that is, to the Universe in its cosmological perspective. Nor is this perspective foreign to individual experience, for, as Whitehead affirms, importance "passes" to the world as many.

The verb "to pass" is the verb that, as we shall see, Whitehead used on the last page of *Process and Reality* to characterize the dynamics of the relationship between God and the world. Yet God is not, of course, what explains: he is what is required, in terms of the conceptual scheme, by the cosmological perspective. "Passage" then means that this perspective belongs to experience, in the mode of feeling that a decision will not only have consequences beyond itself, but matters to something other than itself. Unlike a throw of the dice, indifferent to the consequences that depend on it, a free gift implies that the feeling of waiting is an ingredient of the occasion. The question *"what is expected of me here?"* is too important in human life to be ignored.

The full solemnity of the world arises from the sense of positive achievement within the finite, combined with the sense of modes of infinitude stretching beyond each finite fact. This infinitude is required by each fact to express its necessary relevance beyond its own limitations. It expresses a perspective of the universe. Importance arises from this fusion of the finite and the infinite. The cry "Let us eat and drink, for tomorrow we die" expresses the triviality of the merely finite. The mystic, ineffective slumber expresses the vacuity of the merely infinite (MT, 78–79).

"The full solemnity of the world" does not transcend the "fact" but is required by the fact as soon as the latter is experienced in the mode of positive accomplishment or—which amounts to the same thing—of defeat or betrayal. The fact itself then demands relevance beyond itself, and both cry and mystical slumber bear witness to this, even if, each in their own way, they testify to it in the mode of what Whitehead, in *Science and the Modern World,* called "the great refusal," a decisive mode because of the importance for them of the propositions they render "non-true."

Here, what is to be thought is no longer an order of nature, for a form of dualism always corresponds to the definition of such an order: that of statements of knowledge that cannot help but presuppose and ratify a

contrast between those who learn the attention due to what they deal with and what they have to deal with. The point will be to attempt, experimentally and with my own means, to inhabit the cosmological perspective opened up by Whitehead in *Modes of Thought*. Like all experimentation, this one has a goal. What matters here is to explore the proposition that the question of the cosmos does not transcend positive knowledge any more than the solemnity of the world transcends positive individual achievement. It merely demands that attention be paid to this knowledge itself, to the way that, although it deals with societies, it testifies to the question of the importance, beyond itself, of individual expression.

What matters here is thus the plurality of modes of knowledge. Let us take this simple question as a starting point: why do biologists, in general, have no doubt that the order they are trying to understand is that of a living being, whereas the order that physicists are in the habit of baptizing "laws of nature" has given rise to such a doubt, to the opposition between reality as it supposedly is "in itself" and as we define it as an "object of knowledge"?

The laws of nature are large average effects which reign impersonally. Whereas, there is nothing average about expression. It is essentially individual. In so far as an average dominates, expression fades (MT, 21).

The enduring social continuity that physicists describe by a function requires and translates the dominant "impartial" character of the modes of taking-into-account called "interaction," which the physico-mathematical function characterizes in terms of articulations between well-defined variables. The exploit constituted by the production of a physico-mathematical function is thus radically asymmetrical. The techno-conceptual creativity of those who formulate it implies the most extreme partiality, the most extreme importance accorded to the struggle against any possibility of confusing scientific statements and "opinion." But the statement, for its part, renders explicit the way in which societies reproduce by respecting a median conformity that we baptize "laws" or "regularity": in their cases, the divergence always constituted by an individual expression has no importance. Correlatively, the "reality" of what physics baptizes as an "individual property" (of electrons, atoms, molecules maintaining themselves in conformity with themselves) can always be placed in doubt, identified with the functional articulation of experimental relations and thus made relative to the questions raised by the experimenter.

In contrast, a living society must be approached in terms of questions that render explicit its partial character: what is food or poison for it, what will allow it to reproduce, what will provide it the opportunity to survive, what will kill it. In other words, functional articulation in biology has as

its respondent a society characterized not in terms of conformity, but of selective choices that are extremely partial, precise, varied, and sometimes unexpected with regard to what does and does not count, with regard to what is relevant and what may be neglected. With regard to what matters. Biologists cannot confuse the choices with which they deal with a translation of their own questions, an answer to their own demands. To take up Heisenberg's famous saying, they are neither actors nor spectators, but "inquirers." In one way or another, the "biological function" refers to beings for whom the logical roles it makes explicit matter.

Here, the point is no longer to "justify life" from a cosmological viewpoint, but to celebrate it. The contrast between life and nonlife does not, of course, designate the cosmic epoch in which the question of importance emerges. This contrast designates our mode of thought in the first instance, the full solemnity of the difference between those of our modes of description that presuppose and confirm the possibility of neglecting the relevance of individual expression, and those that must recognize it in the guise of partiality. "Life is robbery": every living society implies the creation of a way of enduring whose importance is paid for by an active differentiation between what its maintenance requires and what threatens it. Whereas nothing in the description of copper alludes to the fact that its encounter with sulfuric acid will have as its consequence a social catastrophe for the molecules of copper, the least cell or the slightest bacterium exhibit the partial character of their relation with other societies, prey or poison, in their environment. Whereas the physico-mathematical function refers to a homogenous world, to the environment of a society as described by the same variables as those that describe its own social behavior, the history of life tells the story of the creation of multiple, selective, and innovative articulations. In biology, functions are related to issues.

I will first turn to *Religion in the Making* to find the terms of that celebration in Whitehead, for it is here that the term "expression," associated with a rather unexpected reference that I have decided to take seriously, appears for the first time with properly cosmic echoes.

Expression is the one fundamental sacrament. It is the outward and visible sign of an inward and spiritual grace [. . .] *There is then a community of intuition by reason of the sacrament of expression proffered by one and received by the other.*

But the expressive sign is more than interpretable. It is creative. It elicits the intuition which interprets it. It cannot elicit what is not there. A note on a tuning fork can elicit a response from a piano. But the piano has already in it the string tuned to the same note. In the same way the expressive sign elicits the existent intuition which would not otherwise

emerge into individual distinctiveness. Again in theological language, the sign works ex opere operato, *but only within the limitation that the recipient be patient of the creative action* (RM, 131–133).

In *Religion in the Making,* the emphasis was on human experience, and the expressive sign rather clearly implies "human intuition," as it can be exhibited for instance by the proliferation and reception of a grimace, a gesture, a word, or a sound. This sign thus refers to what Whitehead calls the "symbolic." And yet, the fragments cited may also describe what, in *Modes of Thought,* Whitehead decided to call "expression," the way each actuality "proffers" its divergence, which will have to be taken into account and will contribute to bringing forth what will inherit from it. In this case, however, the one and only fundamental sacrament would designate creativity, as attested by any given concrescence. Each initial feeling is an "expressive sign," giving rise to the creative process that will make it come into being as the feeling of a subject.

Taking seriously the reference to sacrament that Whitehead associates in *Religion in the Making* with what he calls "expression" by no means signifies conferring any kind of privilege upon the conception of the supernatural associated with the Catholic religion. The sacraments are interesting in that in Catholic doctrine they designate the question of a reproducible intervention of the supernatural within the natural. Such a question implies a "mode of thought" inhabited by the contrast between this type of intervention and a nature defined by its own regularities. In this sense, the sacraments allow the question to be raised of what we call "regularity." On the other hand, among Catholics the efficacy of the sacrament is said to be "objective." The sacrament must actually produce what it signifies; its signification cannot itself be reduced to a "secondary quality." The contrast is thus irreducible to a form of symbolic efficacy, as we say today, testifying only to human subjectivity. The sacraments demand a "realism" that is precisely what Whitehead subscribes to when he emphasizes, still and again, that all feeling is the feeling of an object, and that objects are what have to be felt.

Quite obviously, the way that, prolonging Whitehead, I intend to generalize the notion of sacrament transforms the meaning of the contrasts associated with it by Catholic doctrine. It is our modes of thought that are under investigation, not an actual opposition between natural and supernatural, or between "merely" subjective and objective. What is at stake is a farewell to a "nature" capable of defining itself, a farewell to the possibility of attributing to "natural entities" a behavior, properties, or capacities that would enable a general definition of what is meant by "it can be explained 'naturally.' "

The question of the conditions under which the sacraments are effective has provoked passionate theological discussions. On what does this efficacy depend? What is the share of divine grace, and what is that of man? What is the share of the person who administers, and that of the person receiving? With the theological formula *ex opere operato,* Whitehead adopts a position in this discussion: the sacrament is efficacious independently of the person administering it. The priest's sacramental words are valid as soon as he is a priest, independently of his state of sin or of grace. The only condition is that the person receiving the sacrament not present an obstacle. What is an obstacle? That is another delicate theological question.

For Whitehead, when he was writing *Religion in the Making,* the question of obstacles obviously implied what is called "social environment" in *Process and Reality.* The stones do not tremble with hope when John the Baptist designates them. However, this definition of an obstacle no longer holds if we take the risk of accepting that what is called "expression" in *Modes of Thought* is still valid as "one and only fundamental sacrament." For here, expression is that whereby each actual entity, whatever it may be, transcends all the actual entities from which it inherits, including God. And, in this case, the relation between sign and response has neither measure nor judge, and the notion of obstacle therefore becomes completely indeterminate. The efficacy associated with the sacrament of expression, the "one and only fundamental sacrament," cannot be refused to any creature of creativity, any more than Leibniz refused a soul to any monad.

The great line of difference does not separate the organic from the inorganic, but crosses the one and the other by distinguishing what is an individual being from what is a collective or mass phenomenon, what is an absolute form and what are massive, molar figures and structures. These are the two levels or two aspects of the calculus [. . .] *individual beings are probably the last and sufficient reasons* [. . .] *But the lower level is no less irreducible, because it implies a loss of individuality among its components, and relates to different kinds of composite collections material or secondary forces of linkage. Clearly, one level is folded over the other, but above all each one conveys a very different kind of fold* [. . .] *What must be radically distinguished are the pleats of matter, which always consist in hiding some part of the relative surface that they are affecting, and the folds of form, which on the contrary reveal to itself the detail of an absolute surface that is copresent with all of its modifications* (LP, 139–140).

To the Leibnizian contrast described by Deleuze between folds and pleats, between actualization in the soul and realization in states of af-

fairs, corresponds the distinction constructed by Whitehead between the indivisible unit of subjective satisfaction and the pragmatic value it will assume as part of the many for other occasions. Objective immortality in itself signifies the loss of the individuality of what has been accomplished, and the relevance of physical laws testifies to the possibility that nothing then "counts" other than a transmission dominated by conformity. The loss of individuality does not, however, as in Leibniz, proceed from a contrast between two modes of description, two levels, two aspects of a calculus, but from the "perishing" that transforms individuality into a fact, whose value depends on future decisions. Objective immortality means that what follows is responsible for the new modality in which the gift of individual expression will be taken into account. What is certain is that no occasion will inherit the way the subject made the multiplicity of its feelings hold together, in all its details, the way it was co-present to each *qua* immediately its own.

Yet if the loss of individuality does not pertain to modes of description, but designates the "perishing" of the satisfied subject, the "one and only fundamental sacrament" constituted by expression does not suffice to ensure the difference between a disorderly universe and a "cosmos." For there to be a cosmos, what has been decided, what the individual has made of itself, and what it has unified as its datum must be able to "matter," that is, to succeed in infecting its environment with the consequences of the fact that it is this expression that was produced and not some other. From the piano responding to the tuning fork, to the understanding that responds to a word, the "expressive signs" we can evoke do not, in fact, correspond to the one and only sacrament, for all of them require societies capable of granting importance to individual expressions, or, in Leibnizian terms, of giving meaning to pleats of matter that certainly hide, but that also exhibit a selective and partial manner of pleating in one way rather than in another.

Obviously, what we are approaching is the question of what I have called the "culture of interstices," which I have associated with the "cosmological justification" of living societies. The term "culture" referred, beyond the "fact" of the interstices where life lurks, to their importance, that is, to the way living societies can simultaneously canalize and be infected by what lurks: originality. And we can henceforth give a name to what may well be specifically associated with this originality, what the efficacy of a "sign" as such testifies to. It pertains to propositional feelings to open up new possibilities of "folding one level over the other." The relations between levels, the gift of the individual expression, may then be multiple, adventurous, and capable of originality.

And of course, the most exacerbated example of adventures that relate importance and expression, social belonging and originality, is language. No one can be said to be responsible, guarantor, depository, or author of a language, for no individual expression has the power to modify it unless this modification is taken up by others: unless it infects them. Language exists only in a collection of individual expressions, but these expressions translate at the same time a social "fact," a "cosmic reality," without which neither language nor speakers would exist: the efficacy proper to these expressions capable of infecting human experience, that is, just as much the "patience" of human experience with regard to this infection.

The question of "sacraments" is thus not closed. To unicity, to the one and only fundamental sacrament, corresponds the indefinite multiplicity of entities. But the question of the importance of an individual expression must also be raised, and it can only be raised according to the essentially plural modes of what societies make possible and what they impede, what they are unable to entertain. The prophet's audience trembles, but not the stones.

The unique sacrament of expression might then call for a sacramental plurality: "the" sacraments, in the sense that each one corresponds to a different ritualization, that is, communicates with the social question raised by the "patience" of a society *qua* condition for the efficacy of a sign. In *Modes of Thought,* of course, Whitehead no longer speaks of sacraments, but the cosmic meaning he confers upon expression and importance translates the same obligation to think in a deliberately "anti-naturalist" mode. Importance, which "passes from the World as one to the World as many," and expression, "the gift from the World as many to the World as one," testify, by the plurality of the ways that one passes and the other gives, to a cosmos, in contrast to the neutrality of creativity. As in *Religion in the Making,* then, the point is to propose a "mode of thought" that articulates what the scientific and religious modes of thought oppose, but the question of the "culture of interstices" obliges us to reunite: the possibility of descriptions that "explain" certain living societies, and the ineffable mystic sentiment that leads "living persons" themselves to live in immediate unison with the cosmos.

Let us take first the scientific achievement of biochemists, demonstrating that a specific interweaving of chemical processes produces an overall behavior analogous to a form of "calculation," assigning to the interacting elements roles of a quasi-logical kind. Even if the biochemist-modelizers announce that an apparently finalistic functioning has been reduced to molecular behaviors that are perfectly compatible with physico-chemistry, they are in fact celebrating the signal novelty constituted by an interweav-

ing of chemical processes that become, as such, capable of being described as "working" in a way that is both intelligible and partial, giving original consequences to the presence or absence of certain ingredients in its environment, that is, giving them a signification.

The discourse on successful reduction will turn the analyzed case into the representative of a generality, and the person holding this discourse will often make common cause with other defenders of the same generality. Yet "Whiteheadian" biologists, for their part, would be more "concrete": their result, even if its site is a laboratory populated by a chemist's instruments, has issued from questions that differ from those of chemists. For chemists who wish to obtain a given type of synthesis and no other, what matters is the success of "their" synthesis. The result will belong to them, and they must deserve it. Biochemists, too, must succeed and deserve, but their questions are directed to a success that has already taken place: the chemical interweaving "holds," "works," and "functions" before them and without them. In one way or another, the state of affairs they study implies that the molecules play "roles" which it is, of course, their job to decipher, but each of which, as they know *a priori,* should be the partial expression of a function without which they would not exist as such. From the viewpoint of this function, each molecular behavior is required, but none of these behaviors explains the function: it is the function itself that explains itself through them.

Wherever there is a region of nature which is itself the primary field of the expressions issuing from each of its parts, that region is alive (MT, 22).

Once again, this is not a matter of "mystery" but of a transformation of the mode of description. In one way or another, it is as if the biochemists were not the first "interpretants," as if what they deal with was simplifying, or schematizing, or abstracting "on its own account," in a way that can be described, and that can even be "explained," but on condition that all the relations that matter in *this* case have been identified and articulated. The explanation is not reductive, because the question it answers is not that of the chemist—what molecules are present, and how do they interact?—but that of the biochemist: how do these processes manage to . . . ?

If one had to associate the intelligible, logical simplification presupposed and made explicit by biochemical models with the efficacy of a particular sacrament producing what it signifies, that is, in this instance, the importance of a partial articulation, distinguishing success and catastrophe, life and death, it would be to the efficacy of the sacrament of marriage. Each such articulation is an entreaty to the universe: "What God has united, let nothing break asunder." To this sacrament corresponds the

efficacy of functional "signs" or "sensibilia," signs that must be felt in order for the roles required by the function to be articulated.

With the time for marriage, however, what also begins is the time of "marriage against nature," of articulations between heterogeneous things as such. The intense traffic of signs, the multiplicity of traps, mimes, lures, and poisons woven by the lives of plants, insects, and parasites, had fascinated Bergson, who, in *Creative Evolution,* turned the contrast between the perfect precision of instinctive action and the clumsy hesitations of intelligent action into the terms of a choice between two divergent directions carried out by life. What Bergson celebrated with instinct translates the original successes proper to "functional societies": what succeeds may be called "requisition," the "grasping" of a being *qua* "playing a role" in a function. The orchid that presents a mime of the sexual organs of a female wasp increases its chances of contact with the male wasp, which improves its own chances of reproduction. The parasite that affects the brain of an ant so that it goes to immobilize itself at the end of a blade of grass increases its chances that the infected ant may be grazed along with the grass by the herbivore, as is required by its own reproductive cycle.

It is very important, from the viewpoint of the modes of thought called for by living beings, to emphasize the extremely varied field of relevance of what is called a "model" in biology. Biochemical models exhibit highly complex functions, articulating a rather large number of variables, most often requiring computer simulations. But what also lend themselves very well to modelization are the multiple modes of etho-ecological definitions of living beings, according to the "functional" signs they give or are sensitive to, what those signs elicit, with what consequences, and so on.

I will therefore associate the efficacy of the "sacrament of marriage" with what is the privileged field for modelization in biology, exhibiting the efficacy of functional signs, whether they refer to functions that are internal (the quasi-technology of intra- and intercellular detections, captures, and regulations) or external, between wasp and orchid, or between ants, or between the butterfly and its female, whose smell it can detect at a distance of several miles. The model makes explicit the articulation of roles played by various, disparate actors, independently of their personal experience: whatever the butterfly's experience may be, the odoriferous molecule intervenes in the direction of its flight, and the female, source of the odor, may be at the arrival point.

Can we already speak of a propositional efficacy, in the sense that it designates a "culture of interstices"? A model renders a proposition explicit, but what entertains this proposition—with admiration, astonishment, or amusement—is none other than the biologist. This is why the

relevance of such a modelization communicates, in our modes of thought, with "natural selection," the great sieve, indifferent to what it retains, as long as it improves the chances of survival and reproduction. The model defines, in Leibnizian terms, the modes of "pleating," or partial, pragmatically verified simplifications that constitute the success of living societies insofar as they endure and infect. But the model is mute about what we cannot imagine, the efficacy of the functional sign itself, what it "does" to the experience it infects.

What does the wasp that has been seduced by an orchid "feel"? The butterfly detecting the odor of a female? The ant rushing to attack an intruder? We cannot imagine, and the models do not tell us, but they are also—and this is highly interesting—completely neutral in this matter. This corresponds well to the definition of marriage: whatever you feel toward your spouse, you are united. Ethologists know that they must certainly not attribute to insects and parasites—the two types of living beings which, according to Bergson, embodied the triumph of instinct—experiences that would imply the possibility of a disappointed, furious, or frustrated wasp, of a butterfly looking forward to a delightful encounter, or of a heroic ant overcoming its fear. Perhaps one could say that for such beings, action must be stated in the infinitive: "copulate," "go," "attack," as close as one can get to an imperative without a subject. In any case, it is important to insist, once again, on the fact that impotence in imagining by no means signifies absence. The experiences of a wasp, a butterfly, or even a biological macromolecule are unknown to us, and they are certainly different. It is possible that, unlike a macromolecule, the wasp's experience includes the sense of a continuity of experience. It is possible that, in its case, the reception of a "functional sign" is the experience of a bifurcation of experience. Ultimately, we do not know what constitutes for us the experience of a word when we are not paying specific attention to it either. Nor is it an accident that Nathalie Sarraute has named the obscure multiplicity of tiny experiential bifurcations "tropisms," a term used for plants and butterflies, successfully conveying the extent to which such bifurcations populate the adventure that is both required and smoothed over by the continuous construction of a "living person." Our imagination presupposes and implies attention to the truth, and to all the contrasts articulated around this attention. It cannot therefore bear directly on "a word," "this word," without making it change its nature, without transforming its reception into an imaginative experience. But some writers and other artists may succeed, by reinventing the very meaning of attention to truth, in evoking something of experience "outside of personal requisition."

The fact that models are relevant, although they cease where we cannot imagine, translates the proper efficacy of the "sacrament of marriage," the disjunction between experience and requisition. The sacrament is efficacious, whatever the spouses feel about it. The model renders explicit the way that disparate beings are in a situation of correlative requisition, requiring one another, and its relevance consists precisely in the fact that here it is requisition alone that matters, independent of the question of expression or the experience that gives rise to the functional sign. With functional signs, biologists thus celebrate life as "imposition" in the sense Heidegger gave to this term, a functional, calculating taking-into-consideration. One might also say that it is here that the (Hegelian) notion of the proposition as the murder of the thing takes on a precise meaning. If the proposition in general implies and carries out a form of robbery, reducing its logical subjects to the status of food for a possibility (PR, 258) with no concern for their individuality, the properly biological proposition carries out this operation to the letter.

Everything changes, however, once we can associate the notion of proposition with its "entertainment" in an experience that is not that of the biologist. Everything changes when we enter into the domain of behaviors to which ethology owes its existence, because these behaviors have imposed the interest of describing animals in "their" environment, not in one that has been artificially prepared. We can speak, of course, in the broad sense, of the ethology of ants or spiders, but the difference between environments in this case is not crucial: we know, or we think we know, what ants and spiders need to behave in a "typical" way. In contrast, when we are dealing with a rat or a bird, the difference between a "natural" and an "artificial" environment becomes important, as is attested by the confrontation between the ethological and experimental modes of thought, and is also attested by the suddenly highly questionable character of models that interpret behavior from the viewpoint of its selective value alone.

Where is the change to be situated? Here I will follow the suggestion of Deleuze and Guattari, according to whom we can designate the kind of animals capable of obliging our modes of thought to take this change into consideration. The animals in question are the ones called "territorial":

Art may begin with the animal, or at least with the animal who marks out a territory and builds a home (the two are correlative, or even merge sometimes, in what is called a habitat). With the territory-home system, many organic functions are transformed: sexuality, procreation, aggression, food, but this transformation does not explain the appearance of territory and home, but rather the reverse; territory implies the emergence of pure sensory qualities, which cease to be merely functional and

become expressive features, enabling a transformation of functions (QPh, 174).

This suggestion, fully developed in *A Thousand Plateaus,* fits admirably with the sociology of life that Whitehead demanded. The point is (obviously) not to attempt a reduction of art to territorial signs, but to celebrate the irreducible character of the event named "territory." Everything changes "with" territory, "with" the emergence of signs that are no longer merely "functional" but "expressive," that make sense or symbolic reference "for" the animal itself.

The case of the butterfly attracted by an odor, and that of an "intruder," recognizing by an odoriferous mark that he is penetrating into someone else's territory, do not have much in common. No biochemist will risk undertaking a model that actually articulates the way that the detection of the odoriferous molecule matters, its consequences for the animal that "smells": the intruder's unease, its hesitations, its attention on high alert. Here, indeed, "what" is discerned discloses other discernible things, for instance, the possible presence of the legitimate owner of the territory into which the hesitant intruder is venturing. The animal is "aware" of the fact that it is not at home.

We are entering the domain where reference to "molecules" becomes a byword, concealing the fact that here due attention must be paid to propositional efficacy as such. We are entering the domain where the "culture of interstices" must manifest itself, that is, the notion of "living person" as well, whose constantly reinvented continuity presupposes both infection and canalization—in short, originality.

The fact that models are fairly inoperative in this case does not by any means signify that we have reached a mysterious point at which behavior becomes "inexplicable," but simply that the framing of the explanation has changed. Independent of any hypothesis about animal consciousness, the reference to territorial behavior as such implies that a series of contrasts has a meaning "for" the animal, matters "for" it, and ethologists, like a piano string "responding" to a tuning fork, will be irresistibly induced to make the animal the subject of their description. Henceforth, the individual lives in "its" environment, or "milieu," and ethologists, when they describe the radical difference between the behavior of the "intruder" and that of the "legitimate owner," no longer reconstitute but accompany with their words the risks experienced as such by those they are describing. Here, imagination is not a vector of a misplaced anthropomorphism but a risk inspired by an irresistible "community of intuition."

In other words, upon the traffic of functional signs—which, of course, continues—the open question of possible communities is superimposed,

with their rituals, distances, synchronizations, rhythms and jingles, their perceptions. And upon the risks evolution has sanctioned throughout biological evolution are superimposed, in our modes of thought, the risks experienced as such by the individual, by the intruder whose tense, nervous body hesitates, testifying to the fact that it "does violence to itself," by the rabbit that hesitates to flee, or by the monkey isolated in its cage, who gnaws on its tail while the experimenters discuss the possibility that animals may suffer.

Pursuing the theme of sacraments, one might celebrate the territorial event in the terms that define the sacrament of baptism. Just as baptism introduces the members of God's people one by one into their native land, so the "territorial" sign may be described not merely as the entertainment of a proposition as such, but as an entertainment implying a feeling of belonging: my territory, my male, my people, my habits, my discipline. With the territorial animal, the notion of a "common world" assumes a meaning, under the banner both of a contrast—the community to which one does or does not belong—and of the appearance of "symbolic reference"—expressive features that are perceived, there, in relation to our trembling, hesitant, appetitive, assured bodies, which are "here": the percipient event.

How far should we extend the consequences of this innovation if it gives meaning to the contrast between "me" and "not me," "mine" and "not mine"? The animal whose fur stands on end when it identifies an intruder could surely not experience the radical metamorphoses of the experience of itself and its world that must be traversed by what we call a butterfly, from larva to winged creature. If we refer here, once again, to the great bifurcation that Bergson observed in the history of life, between instinct and intelligence, we can then wonder whether another novelty might not be correlated with it: living as "having a body." For Bergson, intelligence can be identified by its hesitation, clumsiness, and approximate character, translating an interpretative distance that is foreign to the sensible certainties of a butterfly flying toward a female. Yet hesitation, clumsiness, and approximation cannot be stated without presupposing a feeling of the difference between "self" and "one's body," a feeling of the body as property, itself endowed with properties with which one has to make do. In other words, the association between "percipient event" and "bodily life" that Whitehead pointed out in *The Concept of Nature* can also be phrased as "having a body."

The sacrament I associate with "baptism" would thus celebrate a conjunction in experience among what we designate as "having a world," "having a body," "being able to hesitate," "taking risks," and so on. Its efficacy would have as its correlate the fact that learning *from* these ani-

mals may also mean learning *with* them, implying that a common world is possible with them. And this is indeed what is translated by the risks proper to ethology, risks that translate the full solemnity of the event that is indicated by the "ethological mode of thought."

The first risk is that of "psychologizing projection." To speak of a "community of intuition" is not to speak of any guaranteed adequacy of interpretation, truth, or intersubjective fusion. As is demanded by the objective efficacy of the sacrament, the risk, that of an "empathetic" ethology, translates the new stakes that take on meaning for ethologists, and which are those of "symbolic reference." Moved by your expression, I may also be as completely wrong about the consequences as I infer them, as the ethologist may be wrong about what this chimpanzee showing his teeth means. To speak of "community" is to speak of creation of the problematic space in which the question of interpretation assumes meaning—of what has been understood or misunderstood, of trust and of deceit, of hesitation and of verification. As Bergson said, it is when life makes the choice of intelligence compared with instinct that the notion of error itself may be formulated. Here, then, the expressive sign, as a vector of abstraction for a problematic experience, may be said to be fully and simultaneously lure and decoy, eliciting temptation, hesitation, frustration, or disappointment. In short, when a society is no longer "functional," but gives meaning to a "community," its interstices make themselves felt by all the propositions entertained, which are therefore "true," but whose meaning it is sometimes better to verify.

Another risk proper to ethology is that ethologists, unbeknownst to them, may observe behaviors that they themselves have brought about, that is, that they may have "domesticated" those they thought they were just describing.

Here again, risk indicates the objective efficacy of the sacrament. The members of the people of God are introduced one by one, and it is only one by one that animals can be domesticated, that is, in this case, led to admit a particular human into their "domus": a singular, important person, whose gestures and attitudes may be interpreted as "theirs," as the "significant other" on whom they are counting and with which (or whom?) they live. If domestication is possible, it is no doubt because human beings understand something of the importance of the hesitations, temptations, fears, approaches, and flights of the animals they seduce. How they interpret what they understand is a wholly different question: what domestication celebrates is that nether the seduced nor the seducer may be defined in terms of functional signs that make a social, specific world for the insect. The expressive sensibilia that are being invented

between themselves, laboriously, painfully, indicate that this time the adventure of life designates the individual, or the living person, as an active, vibrant site of the negotiation that takes place within it among fear, curiosity, and attraction. A site that testifies both to the infection and to the canalization through which what is new becomes important.

Finally, in ethology, there arises the thorny question of the innate and the acquired. There is no debate about the "innate" character of the behavior of ants and butterflies, but the question arises of the "innate" character of human intelligence, homosexuality, or aggression and of birdsongs, or of the long, complex parades that precede and seem to condition that functional behavior known as copulation.

Intelligence, homosexuality, and aggression are categories that are too "coarse" for the question to be elaborated in an interesting way. The question becomes interesting, however, in those cases where it is clear that the behavior under discussion is closely linked to properly functional urgencies, that is, to matters of selection. Through the question of whether something that is "innate" and as such is supposed to be the direct product of selection, can "explain" the behavior and hence the experience of the individual, the question arises of the articulation between the two "sacraments," corresponding respectively to functional individuality and to the possibility of a common world.

The natal is the new figure assumed by the innate and the acquired in the territorial assemblage. The affect proper to the nata, as heard in the lied: to be forever lost, or refound, or aspiring to the unknown homeland. In the natal, the innate tends to become displaced: as Ruyer says [n.b., Raymond Ruyer, in *La Genèse des formes vivantes*], *it is in some way* prior to *or* downstream from *the act; it concerns less the act or the behavior than the matters of expression themselves, the perception that discerns and selects them, and the gesture that erects them, or itself constitutes them* [. . .] *This is not to say, however, that behavior is at the mercy of chance learning; for it is predetermined by this displacement, and finds rules of assemblage in its own territorialization. The natal thus consists in a decoding of innateness and a territorialization of learning, one atop the other, one alongside the other* (MP, 410).

Once again, it is William James who may help us to understand what Deleuze and Guattari borrow from Ruyer, and more precisely that aspect of William James that has incited the most controversy, the one that affirms that the truth, or importance, of an idea is nothing other than its process of verification, the creative process in which the eventual consequences of these ideas are produced and put to the test. Let us take as an example of "act" the well-known case of the sexual display that precedes

copulation, when a couple of storks is constituted, for example. Copulation responds to a functional imperative that must be satisfied in order for there to be storks in this world. This imperative is not satisfied until the outcome of the display, "downstream," but can we say that the storks obey it from the beginning, that is, that this display behavior is "innate"? For Ruyer, it is more adequate to say that at the outset each stork is for the other an object that is "valorized": important and interesting, eliciting. It may be innate, but must be "decoded" in order to get at its functional meaning. The imperative to be satisfied would have the status of a kind of "fleeing ghost," becoming specified as the display unfolds, as a value that is more and more significant: "my male," "my female." The efficacy of functional sensibilia, of what must be felt in the mode of the infinitive "to copulate," would then be conditioned by a learning process resulting in the creation of an object henceforth discerned, selected, in short, "recognized." *"That's him," "that's her," "that's our home"* will then be celebrated in unison every spring, when the members of the stork couple find one another upon their return from a distant migration.

To follow Ruyer, Deleuze, and Guattari, it is precisely at the moment when perception, in the sense that Whitehead described it in *The Concept of Nature,* becomes relevant, that the innate loses its power to explain, can no longer explain behavior independently of the way it itself acquires a territorial meaning, the way it is "decoded." The innate no more explains territorial behavior—*"my place," "your place"*—than an idea speaks its truth independently of its process of verification. The innate is explained in, by, and for the being that produces itself *qua* belonging to a "community."

A mode of ethological thought celebrating the events that transform the meaning and the stakes of terms such as innate, acquired, world, environment, individual, group, congener, behavior, and so on can certainly not avoid the critical questions that ethologists ask themselves about their perceptions and their interpretations. It might, however, distance them from any nostalgia for the verification processes designating what physicists or chemists call "objectivity," as well as for the modelizations corresponding to what selectivist biology designates as the only good explanation: the power of natural selection. In this sense, such a mode of thought might be vital for our scientific ideals, distorted as they are by the conflicts between the imperative of "objectivity" and the insistence of relevance.

In fact, this last point gives us a typical example of what Deleuze and Guattari call the "territorialization of learning." When working scientists "learn," objectivity is the imperative idea, on which the possibility for knowledge to survive *qua* "scientific" depends. Yet learning is not explained by objectivity, which is only satisfied downstream once what is

relevant in each case has been recognized, once the due type of attention has been determined. Then, and only then, will scientists have become what Kant wanted them to be: judges interrogating "their" object. With regard to the sciences in which the imperative of objectivity does not need to be "decoded," nor learning territorialized, where what the scientist deals with has an *a priori,* "methodical" definition of objectivity imposed upon it, they become the sad analogy of behaviors qualified as "purely instinctive," explicable by the imperatives they obey.

Correlatively, for scientific learning to conclude successfully, for the imperative of objectivity to finally be satisfied, the scientist's question must ultimately be able to designate its "respondent." Not, of course, in the same sense in which the female stork "responds" to the male's advances, but nevertheless in the sense that what has been discerned, selected, and erected by the question "is appropriate," does indeed address something that matters for the being under interrogation. Physicists have learned to interrogate the atom on the basis of its spectra of emission and absorption of light, and their success attests to the fact that electromagnetic radiation matters to the atom, and that it does not matter for the atom's nucleus. Physics is relevant and inventive in that it takes the greatest account of this contrast it has learned to recognize, and it therefore cannot, any more than any experimental science, inspire the dream of an "objective" ethology, transcending the diversity of animal behavior toward a common definition. A successful question, here as elsewhere, is the one that finds its respondent, that learns to discern what matters to what is interrogated. The mode of thought of ethologists studying a territorial animal can therefore not help but differ from that of biologists specializing in bacteria, because the fact of being here or there may make a major difference for an animal if a territorial boundary passes between "here" and "there" whereas it makes none for a bacterium, to which, however, the detectable difference "more or less sugary" matters. With regard to the imperative of having to make a difference between a "good question," finding its respondent, and a misplaced or arbitrary question, it designates humans, of course, and the imagination whose power is celebrated by their mistrust.

When we come to mankind, nature seems to have burst through another of its boundaries. The central activity of enjoyment and expression has assumed a reversal in the importance of its diverse functionings. The conceptual entertainment of unrealized possibility becomes a major factor in human mentality. In this way outrageous novelty is introduced, sometimes beatified, sometimes damned, and sometimes literally patented or protected by copyright. The definition of mankind is that in this genus of

animals the central activity has been developed on the side of its relationship to novelty [. . .] *In animals we can see emotional feeling, dominantly derived from bodily functions, and yet tinged with purposes, hopes, and expression derived from conceptual functioning. In mankind, the dominant dependence on bodily functioning seems still there. And yet the life of a human being receives its worth, its importance, from the way in which unrealized ideals shape its purposes and tinge its actions. The distinction between men and animals is in one sense only a difference in degree. But the extent of the degree makes all the difference. The Rubicon has been crossed* (MT 26–27).

Julius Caesar knew that crossing the Rubicon had nothing to do with "crossing a river." The Rubicon had its own importance at the time of the Roman Republic, and was the object of explicit utterances. The decision to cross it was thus inseparable from an utterance. Julius brought an exclamation into existence—"*Caesar crossed the Rubicon!*"—in order for it to fashion Caesar's destiny, for better or worse.

Verbal statements are obviously not the only "lures for feeling" that we fashion for ourselves. In some circumstances, turning one's back or shrugging one's shoulders can—and we know this the moment we do it—render present the as yet unrealized possibilities of a relationship, a breakup, for instance, or the delicate question of the repair of the irreparable. Not to mention the multiplicity of "things," talismans, fetishes, lucky charms, sorcerers' objects, testaments, experimental apparatuses, and all our writings: so many socially maintained and stabilized ways for charging a being that we fashion to intervene in our lives and those of others, to modify their course. The list is open and might even include—why not?—the scan of his wife's brain exhibited by some fanatical theoretician, declaring to a dazzled audience that this is the genuine portrait of his beloved (who, fortunately, is just as fanatical). For even the scan might, for someone able to endow it with expressivity, cease to be mute with regard to what counts in a portrait. It is not the tender laugh of a face that will have been eliminated in the name of physical measurement, it is the physico-mathematical structure that will laugh tenderly.

There is no sorting process to be carried out here, no distinction to be made between apparent and legitimate efficacy. The efficacy of reading is as mysterious for those who are not readers as is the efficacy of a talisman or a pilgrimage for others. The fact that Galileo may be radically transformed while, like a child, he is rolling balls along an inclined plane requires an entire epoch, as does the fact that a Catholic may share the body of Christ, "his" body, where others would perceive "a" piece of bread.

If the distinction between animal and human is initially marked by the proliferation of belongings that are territorial—that is, also epochal—this proliferation does not explain novelty. It is rather that by which this novelty "explains itself," that is, inseparably, is socialized and causes social divergence. Galileo's experience includes the knowledge that others might compare him to a child while he himself discovers the power of "facts." Catholics, when not defined by an "animal faith," or "blind faith," know that one must belong to the community of believers to accept the piece of bread in the way that is appropriate to the body of Christ. There is a proliferation of belongings, but some belongings are produced under the banner of a contrast, confronting belonging with the real possibility of nonbelonging. And it is here, of course, that we also find the theme of the "great refusal": all the propositions rendered nontrue by a decision link importance and divergence irreducibly.

The efficacy proper to the sacrament of the Eucharist, that is, the miracle of transubstantiation, may be appropriate for characterizing the Rubicon crossed by humanity, for it is precisely with regard to it that a contrast is proposed that is addressed, not to a living person, but to a decision as such. And here, adhesion, marking the entertainment of a proposition, causes divergence: the community of Christians adheres to the proposition *"this is my body"* in the mode of a "scandal of faith," not with the child's beatific happiness, *"this is my mother."* Here, too, a difference may be introduced between animal "faith" and the professionals' adherence to their categories, when this adherence boasts of its obviousness "without qualms." To take up the Leibnizian distinction between "the pleats of matter" and the "folds of the soul," here we can no longer ignore the "soul" in favor of "matter," and our descriptions can no longer limit themselves to celebrating the invention of a "folding over" according to the contrast between what is mine and not mine, or the production of the expressive signs that give meaning to a community.

The specificity of human experience is not defined by its limitations, but rather by "leaps of the imagination" that respect no limitation. Of course, community of intuition still rules and even proliferates. But it may also be experienced as such. In addition, the entertainment of a new proposition is felt as an event. Our modes of thought, as soon as they concern humans, have this specificity as their question, including, perhaps above all, the doctrines that make nature bifurcate, with their explicit or implicit dualism. For both their "subject," claiming a freedom that does not belong to any creature, and their "objective reality," defined by a highly exaggerated coincidence between explanation and submission, testify to the

great refusal. Hesitation, the felt risk of error, may be replaced by terror in the face of the somewhat inflated risk of the production of chimaeras and arbitrariness. If no difference can be made between objective and subjective, everything is permitted!

With the experience Whitehead was to call "intellectual," risk itself henceforth becomes material for propositions, turning experience into a logical subject, reduced to the status of food for a possibility. And it is this risk, rather than any "defining characteristic," that best designates how souls matter for us: they are what we risk losing, what might be captured, reduced to wandering, enslaved. Between "self-righteous people," who know what the good is (a case of community adherence), and hogs, clever territorial animals, the difference is trivial. Correlatively, losing one's hold becomes, in a somewhat exaggerated way, what will be identified with the paradigmatic disaster, or else with the precondition of any initiation or any spiritual transformation.

In other words, we have to deal here with the exorbitant novelty of societies implicitly exhibiting the importance of the possible, or of what might have been, and producing the means to raise the partiality of perspectives to its pinnacle. For the difference between what will and will not be recognized as legitimate, what will or will not be recognized as valid, is no longer a "social fact," but what is at stake: a problem whose terms are, of course, socially defined, but in a way that makes interstices proliferate. This is shown just as much by the minutiae of moral casuistry and examinations of conscience as by the ferocity of scientific controversies. Attention to truth demands sensitivity to new signs and the production of new tests. The devil is in the details, the difference between artifact and correctly established experimental fact demands passionate interest, the devious imagination of competent colleagues.

The fact that Whitehead, apparently quite innocently, calls this novelty "intellectual feeling" may mean that the point is not to describe all our "spiritual" adventures. Instead, it is to designate with great precision, so as to correct any excess subjectivity, the Rubicon that has been crossed. What "might be" is no longer declared by hesitation demanding verification but becomes what matters as such.

In an intellectual feeling the datum is the generic contrast between a nexus of actual entities and a proposition with its logical subjects members of the nexus [. . .] *This contrast is what has been termed the "affirmation-negation contrast." It is the contrast between the affirmation of objectified fact in the physical feeling, and the mere potentiality, which is the negation of such affirmation, in the propositional feeling. It is the contrast between* "in fact" *and* "might be," *in respect to particular instances in* this *actual*

world. The subjective form of the feeling of this contrast is consciousness (PR, 266–267).

The cry of the solitary consciousness, its refusal to conform, its heroic affirmation that it is possible to be right, even one against all, suffice to show that there is nothing neutral about "intellectual feelings." An intellectual feeling may be a vector of heroism, to the point of martyrdom; a vector of stupid arrogance, to the point of the opposition between the future science of neurons and the opinion that "believes" in motives, reasons, and intentions; a vector of eradicative passion, to the point of the systematic persecutions of peoples who cultivate it otherwise. Yet it is also what some ethologists know how to cultivate. They know with lucidity, when performing as the advocates or active protectors of baboons, chimpanzees, or gorillas, that the ability of these beings to inspire our sympathy or our love may be what they will owe their survival to, but they also know that it is not what defines these beings' proper value. Or again, it is what is demanded of his readers by Michel Foucault, who designates himself as a positivist historian and undertakes to describe the social power at work not only in the repression, but also in the production of the feelings we associate with what is true, just, and interesting.

In any case, the fact objectified in "physical feeling" is not a simple percept. It may designate physical feelings that are as sophisticated as possible, but it always designates them by introducing an operation of transubstantiation that de-territorializes them: "my gorillas," for whom I would give my life, are also "gorillas," who, for their part, confer a wholly different sense upon our attachment. "My" most authentic "feelings" about the difference between good and evil, the true and the illusory, cannot be disentangled from social habits induced by the apparatuses of power.

Yet we must not exaggerate. The feeling of such contrasts matters, but only intermittently, and the import of each contrast is limited.

Consciousness flickers; and even at its brightest, there is a small focal region of clear illumination, and a large penumbral region of experience which tells of intense experience in dim apprehension (PR, 267).

The question that begins with intellectual feelings is that of exaggeration, the power granted to the abstractions derived from the "clear" zone to define a situation. As Leibniz said, Buridan's ass, confronted with two fields similar from every viewpoint, would not remain stumped: the slightest detail, the cry of a bird, a fragrant breath of air, apprehended in a confused way, would make the difference. Yet it is quite possible that "Buridan the philosopher" might, because there are no good reasons to choose, confer such power upon intellectual feeling as to affirm that only a violent decision, the expression of a freedom identified with arbitrari-

ness, can decide the question. This is why Leibniz's moral advice, *Dic cur hic,* does not demand that a decision be justified but intends to induce the development of a sensitivity to the concrete of *this* situation, *hic,* against the generalities authorized by conscious abstraction, against the excess differentiation between the limited zone of clear thought and the penumbra of physical feelings accepted without question. Leibniz himself did not rely on his abstractions, ceaselessly testing his system in his encounters with his numerous correspondents, experiencing what they demanded to see recognized, what he was capable of recognizing, what formulation could satisfy them.

Each occasion is an activity of concern, in the Quaker sense of that term. It is the conjunction of transcendence and immanence. The occasion is concerned, in the way of feeling and aim, with things that in their own essence lie beyond it; although these things in their present functions are factors in the concern of that occasion. Thus each occasion, although engaged in its own immediate self-realization, is concerned with the universe (MT, 167).

The concern of the Quakers, or the Friends, which Whitehead evokes, is not the disquiet—*inquiétude* or *Unruhe*—that allowed Leibniz to gather in the same register the disquiet of the thinker, the hesitation of Buridan's ass, or the readiness of a rabbit on alert, but also that of the pencil standing on its tip, which the slightest solicitation would make fall to one side or the other. Whereas the person who follows Leibniz's advice must resist the power of what imposes itself as clear, what makes the Quakers tremble is not to have been silent enough to feel what obscurely demands to be felt. In both Leibniz's and the Quakers' cases, however, the point is to address, by means of distinct intellectual feelings, an excess subjectivity that itself exhibits the efficacy of intellectual feelings, to address the way we ask the zone of clear illumination in which our reasons are formulated to define what a situation demands, and to silence the interstices in which alternatives lurk.

The contrast between the means used by Leibniz and Whitehead reflects a contrast between their respective epochs. Although the Leibnizian analogy, allowing the soul's disquiet to belong to the same plane as the instability of the pencil, could be effective in the seventeenth century, it became dangerous in the twentieth century. In Leibniz's time, it could make a breath of humor waft over statements laden with hatred and polemics, over a theology haunted by the dark question of grace, in whose name Protestants and Catholics were killing one another. Today, power is on the side of the specialists of the pencil, and the instability of the pencil poised on its tip is destined, almost inevitably, to appear as the "finally objective" explanation of the soul's disquiet.

As for the proposition according to which every entity is "concerned," in the Quaker sense of the term, it inspires the most surprising contrast with all our territorial physical feelings, with all our social judgments concerning what is "ours" and what pertains to an unstable pencil. It acts as a revelator: what appears clearly is the contrast between the seriousness with which every proposition intended to assimilate us to an unstable physical system is entertained and the outlandish character, inspiring only irony, of a proposition that would inaugurate the inverse movement, associating with a cosmic suspense each process of self-determination, be it that of the slightest electronic occasion or that of a painter adding the last touch to her work, on which its success or failure may depend.

The soul may certainly be said to be "disquiet" when it refers to a living person. But what emerges with the soul is the possibility, among others, of the Quakers' "concern," that is, the experience of the "full solemnity of the world." This is why Whitehead could integrate the Quaker sense of the term "concern" into his cosmological, speculative thought. What Quaker concern brings into existence cannot be reduced to a worried hesitation, for it escapes all final appropriation: the Quaker God will never be "their" God. The same holds true for the regime of thought induced by the Whiteheadian scheme, whose singularity is to provide an explicit disclosure of the efficacy of the sacrament of transubstantiation. For this regime of thought, which can be said to be deliberately speculative, includes within it a speculation on the possibility that it might become a habit, a mode of thought. Not in the sense of an "uprooting" from every community, a devaluing the living person, but rather in the mode of the "humor of thought": a stable articulation between two regimes of signs, the "territorial" signs that give rise to a "community of intuition," and the "speculative" signs, bringing about the experience of what "might be thought": "facts" as witnesses to a cosmos. Fully deployed intellectual feeling, exhibiting the justification of life as a "culture of interstices," does not coincide with critique, or with a break, but it has trust as its condition: letting go does not mean losing one's hold.

Here, then, with the circle closed, we have once again encountered the function Whitehead attributed to his categories, each application of which was to coincide with a leap of imagination: for we have to do with a culturalization of the "miracle of transubstantiation" itself. Each experience, always initially objectified according to the propositions of a specialized territory, must be able to be called upon to undergo a transformation that gives its importance to the conscious contrast "affirmation/negation," but that does not appeal to the "last judgment" of a critical operation, productive of new territorialities that could be opposed to others. Quite the

contrary, the speculative character of thought is marked by the impossibility of constituting "applications" into appropriable states of things, "my" world designated in "my" language. Speculative language will never be "my" language, in the sense that it will never have to end up in the formation of judgments, whether they have the form of an affirmation, a negation, or even of a suspension of what is pronounced. It does not enable a pronouncement, but it pronounces, and this is its efficacy: its expressions bring into existence a "might be" that no art of consequences can transform into a verified "state of affairs." Yet it nevertheless matters, as did the appearance of expressive signs transforming, without denying them, the imperatives corresponding to functional signs, by displacing them downstream.

The question inspired by this analogy might be: what about downstream? Does an imperative of truth finally find satisfaction in it? If this were the case, there would no doubt be an analogy with Spinoza's third genre, or with a certain version of Nietzsche's will to power, or else with peace according to Leibniz. I shall return to this point at the end of our itinerary. What must be emphasized already is that there will certainly be no question of celebrating God as truth. Divine envisagement—*what is best for that impasse?*—does indeed belong to the "speculative regime" of thought. God is its logical subject, and the feeling of the proposition does not require a judgment concerning the existence of God, in the social sense, implying the possibility of a "last judgment." Its verification depends on its effects, and these designate the person who entertains such a proposition *qua* aware of the contrast between a given judgment and the way in which, immersed in the cosmological hypothesis, this judgment might be "transubstantiated."

In other words, every "*that's true*," every adherence to a proposition concerning God, constitutes a fact that, in the "inevitable ordering of things," is just as much a participant in an impasse. Whitehead's God does not "judge" the propositional feelings that take God as their subject, according to any kind of truth value that would transcend their entertainment. For speculative thought, he is not associated with truth but with relevance. Just as, in *Science and the Modern World,* God's power was defined by the "worship" he inspires, in *Process and Reality,* the importance of the propositions that take God as their subject refers to the difference they make for the experience that entertains them, to their efficacy in the transubstantiation of individual experiences.

Whitehead's metaphysical God does not recognize his own, he does not read in our hearts, he does not understand us better than we do ourselves, he does not demand our recognition or our gratitude, and we shall

never contemplate him in his truth. None of these negative propositions denies its positive as factually inexact; it denies it as pertaining to the fallacy of misplaced concreteness. All belong to the mode of thought that celebrates my relation to my self and my belongings, to my body, to my feelings, my intentions, my possibilities of perception. No thinker thinks twice. It is the risks of thought that are exhibited as such with speculative propositions, and if an imperative of "truth" exists that is satisfied downstream, it cannot be separated from the exercise of thought itself.

Thinking promotes general indifference. It is a dangerous exercise nevertheless. Indeed, it is only when the dangers become obvious that indifference ceases, but they often remain hidden and barely perceptible, inherent in the enterprise. Precisely because the plane of immanence is prephilosophical and does not immediately operate with concepts, it implies a sort of groping experimentation and its layout resorts to measures that are not very respectable, rational, or reasonable. These measures belong to the order of dreams, of pathological processes, esoteric experiences, drunkenness, and excess. We head for the horizon, on the plane of immanence, and we return with bloodshot eyes, yet they are the eyes of the mind. Even Descartes had his dream. To think is always to follow the witch's flight [. . .] *Usually these measures do not appear in the result, which must be grasped solely in itself and calmly. But then "danger" takes on another meaning: it becomes a case of obvious consequences when pure immanence provokes a strong, instinctive disapproval in public opinion, and the nature of the created concepts strengthens this disapproval* (QPh, 44).

We know nothing of the "measures" to which Whitehead, the most amiable of philosophers, had recourse, except perhaps for the strange frenzy of his insertions, implying a highly unreasonable strategy of communication. Yet the result, taken in itself and calmly, that is, a labyrinth of propositions deliberately fashioned to "induce" the "sheer disclosure" proper to a speculative regime of thought, can indeed have "a strong, instinctive disapproval" as its consequence. For the question, crucial for philosophical opinion, *"is this really serious?"* will always be answered only by a double series of consequences, which never cease being revived, like the zigzag of a witch's flight: those that make being exist as importance, and those that make thought exist as expression.