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IV

ETHICS AND THE PHILOSOPHY OF VALUES
AESTHETICS AND THE PHILOSOPHY OF ART
THE PHILOSOPHY OF NATURE
THE PHILOSOPHY OF CULTURE
THE PHILOSOPHY OF HISTORY

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HERDER VIENNA

WAS IST NATURPHILOSOPHIE?
WHAT IS THE PHILOSOPHY OF NATURE?
QU'EST-CE QUE C'EST QUE
LA PHILOSOPHIE DE LA NATURE?

IS THERE A PHILOSOPHY OF NATURE?

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This may seem a strange question to ask in introducing a session devoted to papers in *Naturphilosophie*. Yet, in a sense it is the unspoken question that lies behind all of the papers to be given here today. Four hundred years ago there would have been no doubt as to how this question should be answered. Had there been an International Congress of Philosophy in Vienna in 1568 there might have been serious disagreements in *philosophia naturalis* between nominalist and Averroist, between Aristotelian and neo-Platonist. But no question could have arisen about the very possibility of a *philosophia naturalis*: it was quite obvious that a "philosophic" knowledge of Nature not only was possible but flourished more and more as time passed.

There is no question today about the existence of an empirical science of Nature, rather sharply marked off from the older *philosophia*. Nor is there any question but that this "science" poses all sorts of philosophical issues, issues of method and of theoretical finding especially. The systematic discussion of these issues is called philosophy of science, and there is a quite separate session of this Congress devoted to it. What marks off "philosophy of science" from other parts of philosophy is that the *evidence* on which it rests is drawn entirely from the procedures and the results

of the scientist. In practice nowadays, philosophy of science (in English-speaking countries, at least) tends to engulf all problems to which the modes of thought of the scientist have even the slightest relevance: thus, general theory of knowledge is sometimes classified as "philosophy of science" just because empirical science offers the best-explored instance of what knowing is. Science and philosophy of science are thus entrenched, impregnable, and might seem to have taken over all that was legitimate about the old *philosophia naturalis*.

Is there a properly philosophical knowledge of Nature, distinct from an empirical *science* of Nature? Can one successfully construct a philosophy of *Nature*, today, distinct from a philosophy of science? What sort of evidence could such a philosophy conceivably rely on? Is the philosopher of nature supposed to have some privileged sort of experience of Nature that does not lend itself to scientific treatment? What warrant have we for supposing that an autonomous mode of understanding Nature, "philosophical" rather than "scientific" in character can exist today? Is what is going on in this session today a sort of last vestige of pre-Galilean days, destined to die out as science and second-order philosophical reflection about science completely replace the ambitious first-order project of a direct philosophical knowledge of Nature?

The first difficulty one encounters in attempting to answer this question is the slippery range of senses of the term 'philosophy' in contemporary usage. If "philosophy" be nothing more than a generalized, more speculative, less easily verified extension of science, then of course there will always be a "philosophy of nature". It will keep changing as its assertions become more testable, and thus either become "scientific" in character or else be refuted. As science develops, there must always be an area just beyond its borders where imagination rules, where analogy and simplicity and coherence compensate for lack of specific empirical verification. In a sense, this is the very growing edge of science itself; within it the ranges of possibility that may someday shape the limited testable hypotheses of the scientist take their first nebulous form. If this be called "philosophy" (and scientists like this usage of the term), then a "philosophy" of nature will always accompany a "science" of nature, as its more speculative, less rigorous extrapolation. When Dingle reproached the cosmologists of the 'thirties that their expanding-universe model was nothing more than "philosophy", it was this sense of the term he had in mind. And less pejoratively, when A. N. Whitehead reconstructed the entire categorical system of natural science, it was as a "philosophy of nature" in this sense that he often (though not always) presented his results.

But philosophy is much more often regarded as an autonomous enterprise, not just a second-order speculative reworking of the most general theories of science. It is claimed to possess some form of evidence appropriate to it alone, and to have its own methodology for handling that evidence. Challenged by science to become as well-defined professional specialization of a methodologically respectable sort, Western philosophy in the last few centuries has tended to move far away from the claim to include within itself all speculative knowledge. It has moved even farther from the ideal of an intuitive "wisdom" guiding life and action, a wisdom which responds to challenge by an appeal to life and action rather than to an accepted cognitive methodology of validation. Since the time of Descartes, Western philosophies have been for the most part theories of knowledge rather than theories of being. The assumption is that prior to the specific findings of science there is the complex fact of *knowing* itself, whose general nature is already somehow open to us, and which is presupposed by every specific cognitive claim about the universe, whether scientific or not.

Philosophy in this sense of the term has been a search for the most general structures of knowledge, exemplified in any act of knowing whatever. Sometimes it remained a theory of knowledge, as did classical empiricism, but more often it blossomed forth in a full-scale metaphysics, as did classical idealism. Because of its starting-point in an analysis of knowing, post-Cartesian philosophy has usually not laid claim to any specific knowledge of nature or even of the most general categories of nature. The presumption was that a theory of knowledge could only lay the groundwork, or explore the pre-conditions, for a knowledge of Nature; it could not provide any specifics of that knowledge out of its own resources. Thus all systematic knowledge of Nature would have to come from science; there would be no philosophy of nature as such.

(1) *No Philosophy of Nature*

In the seventeenth century, it was already clear that an empiricist philosophy could quite readily leave all discussion of Nature to a distinct mathematical-experimental mode of knowledge which was already coming to pre-empt the ancient title of "science" entirely for itself. One can see this implicitly in Locke and quite explicitly in Hume. Carried to its ultimate extreme, this would become positivism: the claim that only empirical science could rightfully make a cognitive claim about anything. This is the ultimate negation of a philosophy of nature, and it was no accident that both classical positivism of the Comte tradition and the neo-positi-

vism of the Vienna Circle, derived some of their crusading energies from the conviction that *Naturphilosophie* was a blind alley which had to be closed off if science, the "true knowledge" of things, were to develop unhindered.

Several other modern philosophies, while not quite as emphatic as was positivism about the impossibility of a valid philosophy of nature, still preferred to leave all systematic discussion of Nature to science. Thus the phenomenalism of Russell and the pragmatism of James, had little of their own to say about Nature. The standard apparatus of the natural philosophers of long ago, concepts like *substance, nature, form, matter, potency*, had been almost entirely discarded in the empiricist tradition of philosophy within which both phenomenalism and pragmatism arose. It is true that empiricists might venture some extremely general statements about the physical world regarded as a term of man's knowledge, or about some of the categories that go to make our experience of the world intelligible. But their awe of science was too great to allow the challenge of an autonomous "philosophical" knowledge of Nature, so that even when statements about Nature were made, they would usually be presented as generalizations from some starting-point within science itself.

Some philosophers have been somewhat less neutral to the project of a philosophy of nature, while they would probably have disclaimed anything explicitly called by that name. Classical materialism, for instance, is primarily a theory of being rather than a theory of knowledge, and makes a philosophical assertion about Nature, namely that only "matter" exists. Materialists go on to characterize this "matter" in various ways, as extended, as impenetrable, as corpuscular, as dynamic, and so forth, depending as a rule for their cue on the models in vogue in physics at the time. But the materialist will often be content with his single metaphysical statement denying existence to anything other than "matter", and will leave all specific discussion of the physical world to science. In other words, even though the materialist does have a "metaphysics" of nature (or matter) of a very general sort, he will usually be inclined to positivism in practice, once his initial claim be conceded. The same is true of naturalism in the Deweyan tradition, a metaphysics whose main thrust is the negative one of excluding any sort of being or activity beyond that observable in physical nature. The notion of the "natural" is, of course, central to such a philosophy, just as "matter" is to materialism. But apart from the analysis of this concept itself, there would be little sympathy in naturalism for an autonomous philosophy of nature, complementary to science. The naturalist will be more likely in practice either to fall back

on a quasi-positivist view, or else to construct a kind of "metaphysics of nature" by a speculative extension of the categories and results of empirical science, after the fashion of Spencer or Huxley, or Dewey himself.

Existential philosophies are focussed upon man; for them, Nature in itself does not "exist". It is a featureless *en soi*, lacking in the intelligibility (and thus the being) that only the active presence of consciousness can ensure. In such a view, there can be no genuine philosophy of nature, only a philosophy of human nature, or perhaps a philosophy of nature-as-revealing-human-freedom. The reason that they reject (or, more accurately, disregard) a philosophical approach to nature is not therefore because that they believe (as the empiricists do) another more adequate approach to nature is available. Rather, no "true knowledge" of the non-human world is possible; empirical science provides phenomenal correlations and technological control, nothing more. Because human subjectivity is for them the source of meaning, existentialists are unsympathetic to the question of where that subjectivity itself originally came from, of the structures that Nature had to manifest in order that man himself should ever have developed. In their view, there is no true "history" before man, nothing the mind can lay hold of with a view to real understanding.

These are some of the philosophic options within which philosophy of nature is negated or down-graded. Going on to the different *affirmative* answers to the question posed in the title of my paper, I would like to use as a basis for distinguishing between them the sort of evidence on which they believe philosophy of nature to rest.

(2) *Based on science*

The simplest possibility, as we have already seen, would be to take the results of science as the data for the philosopher of nature. He might construct a philosophy of space and time on the basis of relativity theory, for example. Such a "philosophy" would necessarily be an extension of science and would not differ from it methodologically in any fundamental way. A "philosophy of nature" in this sense would be the most general conceptual framework of contemporary science; it might also include speculative extensions or reworkings not yet open to direct observational test. This might seem a somewhat trivial notion of philosophy; though everyone familiar with contemporary science would possess a "philosophy of nature" of this sort, very few (except some Marxists) would be inclined to call it by this title. Most would simply call it science; some would call it philosophy of science; a few (like Errol Harris) would call it "metaphysics".