

methodological principle that bids us seek, in the long run at least, an integrated/coherent/unified science for the whole of nature? Why is it anything more than a merely aesthetic preference? The answer, I think, is again fairly straightforward. Coherence – not just consistency, but active coherence – with the sum and total of what we presume to know or tentatively accept *is the principal criterion of belief-worthiness for epistemic units of all sizes from sentences on up*. And failures of coherence provide *prima facie* information on where our beliefs are incomplete or require modification. Deliberately to withdraw a favoured theory from the competition for a place within a unified science would therefore seem tantamount to resolving to ignore relevant information about its possible shortcomings, and to spare it the task of meeting the *prima facie* demands of sound reason. I take it this is not a good idea.

It seems to be an idea whose time has come, however, for Margolis is not the only philosopher with a deserved reputation for good sense who has decided to exempt folk psychology from the methodological demand at issue. J.A. Fodor (*The Language of Thought*, New York, 1975) puts the unity of science aside as empirically naive, and sketches for psychology an autonomous future. And Karl Popper (*The Self and Its Brain*, with J. Eccles; Springer Verlag, 1977) has also seen fit to embrace the familiar run of mental states as objectively real and irreducibly emergent, and *tant pis* for the unity of science. These make up a most august company. But the ghost of Tycho Brahe must haunt the path they have chosen.

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#### NOTES

- 1 *The Fabric of the Heavens*, S. Toulmin and J. Goodfield (Penguin, 1961), p. 205.
- 2 See, for example, Hooker, C.A., "Towards a General Theory of Reduction" (forthcoming, *this journal*); or Churchland, P.M., *Scientific Realism and the Plasticity of Mind* (Cambridge, 1979), §11.

## AN INTERPRETATION OF PART OF THE TRANSCENDENTAL DEDUCTION\*

No one should be put off from reading Miles' *Logik und Metaphysik bei Kant* by his telling us that he is following the 'phenomenological-philological method' Heideg-

\* Murray Lewis Miles, *Logik und Metaphysik bei Kant*, Klostermann, Frankfurt am Main, 1978.

ger practiced, as shown in his *Phenomenological Interpretation of Kant's Critique of Pure Reason*, his earliest work on Kant and his last to be published. I do not claim to understand Miles' conception of this method. Whatever it be, what Miles actually presents is a careful examination of a number of crucial passages in Kant's first *Critique* in Kantian terms. From it even the most seasoned student of the *Critique* will find light.

By examining Descartes and Leibniz, Miles seeks to show that what for them distinguishes a sensible from an intellectual representation of an object is that the latter represents clearly and distinctly what the former represents obscurely or confusedly. To this Kant objects that many sensible representations are clear and distinct, many intellectual representations obscure or confused. The Milky Way is seen by the naked eye as a white band. When seen by a telescope the individual stars are seen distinctly. Although thinking of an action as right is thinking of it by an intellectual representation, the attributes implicit in so thinking of it are commonly not distinguished. What decides whether a representation is of the intellect or of the senses is not the degree to which it is distinct, but a difference in kind. By the senses an object is given; they yield an intuition of it. An object is thought by the intellect, by means of concepts. An intuition presents an object immediately; by a concept it is represented indirectly, for by a concept is thought some respect in which it resembles other objects.

Insofar as someone has an intuition of an object but does not represent anything about it he has no knowledge of it. One can represent what is presented in an intuition only by representing it as such-and-such or so-and-so; and one can represent it as such-and-such only by thinking of it as such-and-such. Knowledge can be had only by concepts. But a concept also of itself gives no knowledge. In order for any knowledge to be got by a concept, what is thought in it must be referred to something. In order to refer what is thought in a concept to something one needs besides the concept to represent that to which it is being referred. One can refer what is thought in a concept to something only by judging of something by means of it. The most primitive sort of judgment is that in which one thinks of what is intuited as of such-and-such a sort. Here a concept is referred to what is immediately presented. In any other judgment that to which a concept is referred is itself represented by some further concept, and thereby through it is referred to objects to which the latter may be referred.

In his first hundred pages Miles examines minutely passages in which Kant develops the distinction between sensible and intellectual representations, intuitions and concepts, both before the *Critique* and within it. What has this to do with metaphysics? It is well known that by calling into question what basis there is for thinking that every event must have a cause, Kant states that Hume in effect raised the question what basis there is for any claim to metaphysical knowledge.

Metaphysical knowledge can be got only by judgments both synthetic and a priori. An analytic judgment may erroneous. Even if true, such as that every effect must have a cause, it serves only, directly or indirectly, to elucidate what is thought in a concept, not to achieve any knowledge by it. Making out the truth of a synthetic judgment poses no problem if we can directly inspect what it is about or derive it from other judgments so verified. It is thereby that it is known that arsenic causes death. But that there must be some cause for whatever comes about cannot be made out in this manner. We cannot make out that a synthetic a priori judgment is true unless we can somehow make out that it is in accord with what it is about. But how are we to make out that it is in accord with what it is about when we are cut off from inspecting what it is about or basing it on other judgments certified in this manner? Synthetic a priori judgments bring us to an impasse. It is not without reason that for generations many have flung up their arms in despair in the face of this impasse and declared there is no way of making out their truth. Kant holds that there is only one way of surmounting this impasse. Both horns of the dilemma presented by synthetic a priori judgment are correct. Its truth cannot be made out in the manner by which we acquire knowledge of things directly. We also cannot make out whether it is in accord with things without having some recourse to the means by which we directly get knowledge of them. Consequently he urges that if we are to make out that a synthetic a priori judgment is true of things, this we can achieve only if we can make out that what we attribute to them by the judgment has something to do with what makes it possible to get knowledge of them directly. No knowledge of things can be got directly without what the senses disclose. Although an a priori judgment is just one which cannot be verified in this way, if it is to be made out to be true, this can be achieved only by reckoning what must hold of things for it to be possible to secure observations of them, or to secure knowledge of them from observations. This is Kant's 'Copernican revolution'. Metaphysics seeks what holds of things generally. It can succeed in this only by taking account of what makes it possible to obtain empirical knowledge of anything. If it succeeds, it will reach knowledge of things generally only in so far as they are possible objects of empirical knowledge.

Miles does not discuss the *Analytic of Principles*, in which Kant claims to show how alone metaphysics can establish several principles, each furnishing a knowledge of things generally in so far as they are possible objects of empirical knowledge. Nor does Miles discuss the *Transcendental Aesthetic*. He focuses upon the *Analytic of Concepts*. Before coming to the *Analytic of Principles*, Kant inquires in the *Analytic of Concepts* what concepts are available to metaphysics. He first seeks a clue for discovering such concepts. He then seeks to show that the concepts so discovered necessarily apply to any object of the senses.

Since metaphysics can establish what is true of things generally only by finding what must hold of them for it to be possible to get knowledge of them, and since

knowledge is got only by judgments, an examination of how concepts can be united into judgments should reveal the concepts by which such uniting is effected, and thereby the concepts requisite for a knowledge of anything. A concept cannot be combined with another into a judgment unless the thought of pertaining is employed. A judgment cannot be connected with another into a compound judgment unless the thought of being a consequence of, or being interdependent with, is employed. One concept cannot be predicated of what is thought by another unless some quantifying concept – whether one, several, or every – is employed. If one concept is to be predicated of what is thought by another, what is predicated is an affirmation, negation, or some limitation upon it. And no judgment can be formed without employing the concept of possibly, actually, or necessarily. Since these concepts are discovered, not by reflecting upon what the senses present, but upon what the intellect avails of to unite any concepts into judgments, Kant classifies these connective concepts as pure intellectual concepts.

But while these connective concepts are required for forming judgments and thus for obtaining knowledge of anything are they not merely connective concepts, not also attributable to the objects of which knowledge is got? Kant argues that they are not only connective concepts but concepts necessarily applying to anything knowable. He argues that they can be shown to be such only if it can be shown that they are requisite for providing the thought of an object to which any representations may be referred (B125). In the long note in the Preface to the *Metaphysical First Principles of Natural Science* he holds this can be established almost from the definition of a judgment. Following this clue, let us see why he holds they necessarily apply to an object of a judgment, then why they apply to any object of intuition.

A judgment is not the only means for being conscious of things. One may also be conscious of a thing by an intuition of it or by a concept of it. It is only by judgments that knowledge of things is obtained. A judgment unites one concept with another in consciousness. It brings concepts to a unity of consciousness. By a general concept is united in one consciousness something to be found in several acts of consciousness. By a concept one thinks it apart from the several acts of consciousness in which it is to be found; to any general concept there is an analytic unity of consciousness. By contrast, the unity to which concepts are brought by a judgment Kant describes as a synthetic unity of consciousness; the concepts united in a judgment do not cease to be distinct. Yet various features are to be found in an intuition of an object. In it also there is a synthetic unity of consciousness. What is distinctive of a judgment is that by it one thinks what one represents by each of the concepts as united in some object or objects. How is this? To acquire knowledge with the concepts, say, round and apple, one not merely unites the two together in consciousness but thinks also the unity of consciousness to which one brings them. A judgment brings concepts not merely to a synthetic unity of consciousness, but to

a unity of which one is conscious by the judgment—a synthetic unity of apperception. In judging that apples are round, roundness is thought as pertaining to apples, and apples as that to which roundness pertains. To one concept is added the thought of being that which something pertains; to the other the thought of being that which pertains to it. It is thus that a judgment furnishes the concept of an object to which the concepts in it are referred. Being that to which something pertains is a concept applying to any object of knowledge because it provides the concept of an object to be determined by the concepts united in a judgment.

A similar argument is made for the other connective concepts. It is not merely that a judgment is about every, or several, or one object to which the subject concept applies. One also cannot combine one concept as predicate with another without thinking the former to pertain to every, several, or one. When one thinks, 'If S is P, then Q is R', one is not forming, as Mill maintained (*System of Logic*, I, IV, #3), a meta-judgment, that the judgment 'Q is R' is inferable from the judgment 'S is P'. One is instead thinking of Q's being R as a consequence of S's being P. So whatever is thought to pertain to something, it must be possible to think that it pertains to it in consequence of some other matter. Since the other connective concepts serve further to determine the unity of consciousness to which concepts are brought by a judgment, they too are apperceptive concepts. One under each of the four headings applies to the object of any judgment since it serves further to provide the determinate thought of an object to which the concepts united in the judgment are referred.

Thus far an interpretation has been sketched on how Kant argues that the connective concepts are applicable to whatever is an object of a judgment. Since no knowledge can be got without judgments, this shows they apply to any object that can be known. But since this is established by showing that they are applicable to whatever is judged of, whether the judgment is true or false, or if true can be made out to be true, they apply to every thinkable object.

The next step Kant takes is to argue that the connective concepts are applicable to whatever is intuited, whether knowledge is got of it or not. Miles carefully explores Kant's remark, 'The same function which gives unity to the mere synthesis of various representations in a judgment also gives unity to the mere synthesis of various representations in an intuition' (B104). From this in turn Kant reaches in #20, the further conclusion that 'every sensible intuition is subject to the categories.' How is this conclusion and the argument for it to be interpreted? Certain features of this conclusion are to be noted. (1) We know that Kant claims later in the *Analytic of Principles* to establish, in the light of specific conditions to which the human senses are subject to attain intuitions, several synthetic principles in regard to any objects of intuition, the intuitions of which can be had only in space or time. In #20, however, abstraction is made from any conditions of intuition. The

conclusion reached in #20 applies to sensible intuitions of any sort. (2) Since it takes no account of forms of intuition, the conclusion of #20 applies to empirical intuitions. (3) Since the argument abstracts from conditions of intuition, its conclusion can avail of nothing based on pure intuition. The conclusion is then an analytic proposition, based only on analytic premises, viz., on analyzing the concept of an object of sensible intuition in general. (4) The conclusion confines itself to stating that objects of intuition are 'subject to the categories', without spelling out a specific principle for each category.

With these preliminaries we may consider how to interpret the first step, viz., that every sensible intuition is subject to the connective concepts. Although it does not of itself afford knowledge of anything, an empirical intuition is indispensable to making out the truth of any empirical judgement, and thus to acquiring any empirical knowledge. For example, by attending to what is presented in a certain empirical intuition, I find that the concept of apple applies to it and also that the concept of round applies to it. That empirical intuition thereby verifies the judgment, 'This is an apple and is round' or 'This apple is round'. To an object of intuition I can refer whatever is presented in the intuition of it. 'An object is that in the concept of which the manifold of a given intuition is united' (B137). By 'the manifold of a given intuition' here might be understood not the various features presented in it but the various ways it looks from various perspectives. Ascribing each way it looks from a certain perspective would furnish only a knowledge of how it looks. Moreover, conceiving of an object as looking variously from various perspectives is applicable to what presents itself in space, not applicable to a sensible intuition in general. By an object of intuition is then to be understood that in which the various features presented in an intuition are united. Since I cannot judge without combining representations into a synthetic unity of consciousness, 'synthetic unity of consciousness ... is a condition to which whatever is intuited must be subject in order to become an object for me' (B138). But how does the thought of an object arise to which I refer what is presented? 'The synthesis of the intellect ... is nothing but the unity of the act of which, as an act, it is conscious to itself' (B153). By a judgment given representations are brought to a synthetic unity of consciousness of which one is conscious by the judgment – to a unity of apperception (B141). One does not acquire the thought of an object to which a presentation is being referred without adding to one presentation the thought of its pertaining, and to another the thought of being that to which it pertains. Empirical concepts may be unavailable for determining a certain empirical intuition. But one cannot regard it as an object of intuition without thinking of it as that which is determinable by predicates and by the other connective concepts required for referring.

#20 culminates with the conclusion that every sensible intuition is 'subject to the categories'. Kant does not spell out how each is subject to the several categories. By one interpretation, Kant cannot do so. Specific categorial principles are later set



thought possibly to exist. Even though one cannot think of an object as an effect without thinking of it as existing in consequence of something else, what is thought by a judgment may be thought to be a consequence of what is thought by another without being thought to be an effect of it.

The topic in Kant to which Miles addresses himself reaches a focus in #20. Although Miles sheds much light on the synthetic unity of apperception he does not use this light to illuminate how whatever is intuited by a sensible intuition in general is subject 'to the logical functions of judgment'. But above all we would have liked from Miles an explanation of how Kant argues that whatever is thinkable and whatever is intuitable, whatever the forms of intuition, are subject not only to the connective concepts but also to the categories. Notwithstanding these omissions, the passages to which Miles does attend to he sheds light upon. As a minute textual elucidation of certain passages in the *Analytic of Concepts*, his work has few rivals. It is greatly to be hoped that he will translate his book into English. It cannot be assumed that all serious students of Kant are adept in German.

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## LA THÉORIE ARISTOTÉLICIENNE DE LA SCIENCE. A PROPOS D'UN LIVRE RÉCENT\*

C'est un ouvrage difficile, voire même déroutant pour l'historien d'Aristote, que vient de publier l'éminent épistémologue et logicien de l'Université de Provence, G. Granger. Malgré ces difficultés et ce dépaysement que nous aurons à expliquer dans ces pages, on ne saurait cependant nier l'intérêt que peut susciter aujourd'hui une étude sur la théorie aristotélicienne de la science. Et on ne pourrait trop remercier G. Granger de s'être attelé à la tâche difficile de nous expliquer à sa manière la pensée du Stagirite sur la science.

L'ouvrage est divisé en trois grandes parties. Dans la première partie l'auteur analyse la conception aristotélicienne de la connaissance en général (p. 9-94), dans la seconde partie il se concentre sur la logique et la théorie de la démonstration en n'oubliant pas les syllogismes modaux (*An.Pr.* I, 8-22), qui semblent aujourd'hui avoir quelque faveur chez les logiciens (J. Hintikka, *Time and Necessity*, 1973) (p. 95-220); dans la troisième partie de l'ouvrage l'auteur se consacre à l'analyse de l'objet scientifique et des sciences théoriques, pratiques et poétiques (p. 221-354). Considéré dans son ensemble l'ouvrage de G. Granger se présente comme un effort

\* G.G. Granger, *La théorie aristotélicienne de la science*, Paris, Aubier-Montaigne, Coll. Analyse et Raisons, 1976. 382 p.