THE UNITY OF SCIENCE MOVEMENT AND THE SOCIAL SCIENCES

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The Unity of Science movement began in Vienna during the 1920's, when a number of remarkable men from various fields of science began to hold group meetings for discussing certain common problems of mathematical logic and empirical procedure. The group has since broken up; but in 1935 they gathered in Paris for the First International Congress on the Unity of Science, and further congresses have followed annually. In the meanwhile the group has widened to include many of the most distinguished scientists, philosophers, and logicians of our time. These men are now bringing out an ambitious *International Encyclopedia of Unified Science*, of which several fascicles have already appeared.

The slogan "Unity of Science" has excited some antagonism, and needs to be explained. In the first place, the movement is a cooperative enterprise, which transcends national and racial barriers no less than the traditional borders of the special sciences themselves. Many of its promoters are German exiles, and this unity of deliberate internationalism means a great deal to them. But this is by no means the whole story. We must remember that the word "Wissenschaft" generally has a somewhat wider connotation for a German than its analogue "science" has for an American or Englishman. On the whole we tend to think that a discipline hardly deserves to be called a "science" unless it is based on certain empirical procedures which we lump together under the heading "scientific method." But many German writers, following the lead of Wilhelm Dilthey some fifty years ago, have tended to distinguish two kinds of *Wissenschaften* — *Naturwissenschaften* and *Geisteswissenschaften*, — assuming that these differ radically both in their subject matter and in their procedure, and that strictly empirical methods are more appropriate for the former than for the latter. It is against this division of the sciences that the promoters of the Unity of Science movement have directed their most vigorous polemics, and here their approach is quite in line with our own verbal habits. [5, 7]

There are several ways in which one might hope to unify the sciences, and here the ambitions of the group are fairly modest. Procrusteanism is deliberately eschewed; there is no attempt to fit all the existing sciences into one all-embracing philosophical system or super-science imposed from above. Otto Neurath, the editor-in-chief of the new *Encyclopedia*, takes pains to insist that he has no grudge against any of the special sciences; they must each continue their fine individual progress and only gradually provide the glue for their own unification, which must be accomplished bit by bit, not all in one vast mucilaginous smear. That is why the group is publishing an encyclopedia of monographs by different hands, rather than adventuring an exhaustive systematic treatise. [6, 7]

On the other hand, the group does have some positive theories as to the way in which unification can best be accomplished. As Carnap [4] and Morris [10] have pointed out, we may distinguish between unity of method, unity of laws, and unity of terminology. In America unity of method in the sciences has already been achieved to a notable extent. A unity of laws such as would enable us to deduce all of our empirically observed correlations as theorems from a basic set of scientific postulates is some-

thing which we can hardly hope to obtain, though naturally we must use the axiomatic method wherever it is feasible to do so. Unity of terminology, however, is a much more tangible goal, and it is here that the movement is making the most headway. Neurath and Carnap, indeed, have a special technique for this very purpose, which is expressed in their thesis of "physicalism." This thesis, which strikes me as a plausible one, has often been phrased in language which is too easily misunderstood; I should like to restate it as follows: *every statement which may properly be called a statement of an empirical science can be shown to make some testable assertion about events occurring at certain places in certain times.* This formulation, however, is not without its difficulties.

It is still too early to report on the treatment of the social sciences in the new *Encyclopedia*, for only one of the four relevant monographs (that of John Dewey on *Valuation*) has as yet appeared. But certain published papers of Neurath, Carnap, Morris, Tolman, and other men connected with the movement, show which way the wind is blowing and suggest some interesting problems. These writers seem agreed in holding that the social sciences must be purged of any transempirical constructs left over from the *Geisteswissenschaften*, and that they should be approached by way of a more or less behavioristic psychology. Neurath and Carnap, however, would reduce psychology to simple physicalistic terms,[1, 2, 3, 5, 6, 7] while Morris[10] would apparently handle it as a by-product of the theory of signs which he has so ably presented in the second monograph of the series[8]. Moreover, there seems to be some discrepancy between the views of Neurath, who evidently would extrude the concept of *desire* from economics[7], and those of Tolman[11] and John Dewey[12], whose pamphlet on *Valuation* takes human desires for granted as basic psychological facts. But discrepancies such as these are perhaps a sign of health. And the fact that a large number of first-rate thinkers are really making an effort to talk the same language and join in a common enterprise in matters dear to their own hearts without too much regard for their own intellectual idiosyncrasies, seems to me highly encouraging.

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