

“Scientific Methods and the Investigation of Ultimate Meanings”¹

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By philosophy of science I mean a reflection by the scientist on the procedures spontaneously and normatively operative in his or her ongoing pursuit, within the scientific community, of the advancement of science. Such a reflection is contemporarily both unfashionable and difficult. In the first place, the spontaneous procedures can be cloaked and crippled by an ideology: Marxists descend on historical data with the grim *a priori* perspective of dialectical materialism; economists can concentrate on mathematicized macrostatics through the conventions of a clique; psychologists can dodge the data on human questing through the implementation of an out-of-date method of physics; biologists can pursue their studies enamoured with a cybernetic biochemistry that excludes developmental and evolutionary patterns. In the second place, even without the pressures of ideologies and extrinsicist philosophies of science, the reflection would be difficult because its precise discovery and specification is a novelty of our time.

Just as Galileo’s strategies have been seen to leave behind vague searchings in science for a precision of empirical method, so the generalized empirical method of Bernard Lonergan invites a discomfoting shift from vagueness both in science and philosophy to an empirical precision of methodologically-enlightened scientists. “Generalized empirical method operates on a combination of both the data of sense and the data of consciousness: it does not treat of objects without taking into account the corresponding operations of the subject; it does not treat of the subject’s operations without taking into account the corresponding objects.” (Bernard Lonergan, “Religious Knowledge,” *Third Collection*, ed. F.E. Crowe, Paulist Press, New Jersey, 1985, p. 141). The required reflectivity specifies a new stage in science whereby scientists reveal to

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themselves as a community in history both the forms they discover and the forms of their discoveries. Moreover, history has no mercy on errors, cliques, ideologies. So, for example, the optimism of nineteenth century physics and the narrowness of positivism are being replaced by a more enlightened community of physicists that is being driven to acknowledge both the remote invisibility of the forms of physical forces and the normative pattern of recurrent human operations required to break forward theoretically through the growing carnival of particles.

Now it is in the context of this larger historical perspective that one can benefit from the general analogy of sciences to shed light on the communal academic pursuit of the meanings of ultimate reality and meaning. The context includes an epistemological component generative of the meaning of “is?” and of verification, a topic Dr. Morelli addresses. My interest here is in the methodological context and in the historical and ongoing genesis of methods. This topic is large, so I confine myself to indications of various fruitful analogies between sciences of proximate explanation and meaning and the investigations of ultimate meaning.

Chemistry, perhaps, displays a longer history of alchemical struggle, Chinese, Arab, European, than any other science. The empiricity of Lavoisier and the systematic achievement of Meyer and Mendeleev constituted for it the basic shift to detailed effort within heuristic system that is slowly bringing it to methodological maturity. Biology has been driven in the past century beyond description towards a dominant evolutionary heuristic lifting it forward to a hierarchical and developmental perspective on life-studies that will slowly dissolve a naïve reductionist emphasis on genetic chemistry. Aesthetic scholarship at present shows signs of a fertile confusion seeding a search for a structured collaboration that can be identified as a need for what Lonergan calls functional specialization. (On the problem in musicology, see McShane, *The Shaping of the Foundations*, University Press of American, 1976, ch. 2; on literary

studies, see McShane, *Lonergan's Challenge to the University and the Economy*, University Press of America, 1980, ch. 4).

There is, then an internal dynamic within serious inquiry that pushes with the inevitability of emergent probability towards methodological structures adequate to both subject and object of inquiry. So, while there is the widest possible gap between the problematically possible “grand unification” in physics and the remote heuristic of “grand unification” in studies of ultimacy—indeed, the former study is handicapped by an unintelligible grounding manifold while the latter may be seen as pivoting on inverse insights regarding excessive intelligibility—there is the parallel need for each large historical community to submit itself to the exigencies of a generalized empirical method.

The history of physics, chemistry, biology, and human studies points up the manner in which different sciences seed and flower over centuries and generate, through detailed inquiry, both large heuristic structures and the problematic of generalized empirical method. *The Journal of Ultimate Reality and Meaning*, even after so few years, is an epiphany of a seeding in a zone where that problematic is most acute. For, it would seem that the main content of ultimate meanings' heuristic structure is to be found precisely in the core *noesis* of religious subjects. The seeding manifests both detailed studies in need of explicitated methodological presuppositions and searches, like those of Samuel Alexander and Systems Theory, for a larger perspective, that need the healing pressure of detailed advances, especially in the lower sciences.

What is needed and seeded, then, is an ever more refined openness to the restless heart of the internal dynamic of the personal and total search, in the reflective mode of generalized empirical method and functional specialization, an openness that would carry the search, in centuries to come, into a dialectic and evolutionary heuristic of the genera and species of ultimate meanings existentially present in human groups.