M&O

Methodical foundations as methodical

Method

1. Contrast with logic

Logic concerned with terms, propositions, inferences (concepts, judgements, reasoning)

Method includes all logical concerns and adds a) observation, b) description, c) wonder and formulation of problems, d) discovery of solutions, e) discovery formulated as hypothesis, f) systemtic checking by planned observation, experimentation, g) confirmation of hypothesis or revision, hence h) ongoing process

Logic concerned with simultaneous multiplicity: if any proposition is true, then all its presuppositions and all its implications are necessarily true; again, if any set of coherent propositions are true, then all their presuppositions and all their implications are necessarily true.

Method is concerned with the transition from one simultaneous multiplicity of propositions to another distinct simultaneous multiplicity.

2. A New Ideal of Science

The Aristotelian ideal of science, set forth in his Posterior Analytics, is of a simultaneous multiplicity of propositions in which the conclusions follow necessarily from the premisses and, in each premiss, predicates pertain to subjects universally, necessarily, and eternally. Post. Anal., I, 4.6.8.

The methodical ideal of science is of a normative pattern of recurrent and related operations yielding cumulative and progressive results.

Where there are no definitive observations, for any observation may be complemented by fuller observation, clarified by contrasting observation, corrected by contrary observation. Descartes' Cogito yields place to Husserl's intentionality analysis.

Where analytic principles yield place to analytic propositions (i. e., tautologies). Insight pp.

Where intelligibility as necessity yields place to intelligibility as verifiable possibility: Euclid to Riemann, Newton to Einstein, Laplace to Quantum theory, the old political economists to Keynes and the current breakdown of Keynesianism.

3. Natural science as successful method and possible clue.

a) Two stages: a preliminary stage in which scientific work is still expressed in ordinary language; a later theoretical stage in which scientific results are expressed in a new technical language proper to the science.

b) What is new in the technical language need not consist in new words; essentially it is a matter of new meanings.

c) The new meanings are not merely descriptive of what hitherto was unobserved, unclassified, and the like: such additions occur but they constitute accretions not in the new style of explanatory language but in the old style of ordinary language.

d) The new meanings are technical in the full sense when they are either basic terms or basic relations defined implicitly by empirically established correlations, structures, processes or are derived terms or derived relations defined explicitly by employing the basic terms and basic relations.

e) The theoretical stage of a natural science may be illustrated by the conceptions of Galilei and Newton in mechanics, those of Maxwell in electromagnetics, those of Mendeleev in chemistry, those of Darwin in biology once "chance variation" is understood as schedules of probabilities of emergence and "survival of the fittest" is understood as schedules of probabilities of survival.

f) With the emergence of a technical language, the use of ordinary language in scientific work does not cease.

It still is needed in referring to operations in the whole area mediating between the explanatory matrix and the observations and the manipulations of practising scientists.

Moreover, from the influence of the explanatry matrix and from its use in the intermediate area ordinary language commonly undergoes enrichment and clarification: "going faster" now is accompanied by a sharper term, acceleration; "water" with H_2O; etc. And while the sun still rises and sets, still the relativity of statements about motion has become widely understood.

4. The Methodical Significance of the Explanatory Matrix

a) By an explanatory matrix is meant a set of basic terms and basic relations implicitly defined by empircally established correlations, structures, processes.

b) Its methodical significance consists, not in this matrix in and by itself, but in conjunction with an ongoing process of observation and/or experiment.

The conjunction of the two makes possible a scissors-like action, with a lower blade supplied by the ongoing accumulation of empirical data, and with the upper blade supplied by the explanatory matrix and its vast range of possible further determinations.

Without the lower blade, the upper blade is empty: what relevance have differential equations to reality and action?

Without the upper blade, the lower blade is blind: what is the use of all these observations, experiments, measurements?

c) Note that a successful upper blade

while durable, need not be definitive: Newtonian mechanics reigned for a few centuries only to be superseded by Einsteinian relativity;

while basic, need not prove ultimately fundamental: Mendeleev's periodic table embraces all chemical elements and compounds; but the subatomic particles are more fundamental;

while hypothetical, is too generic to be successfully refuted in short order: the evolutionary tree is not some single hypothesis but rather a general formula that could be satisfied by myriads of different hypotheses.

again, while evolution remains unquestioned, an even more fundamental and more highly generic assumption, mechanist determinism, has had to be abandoned.

d) within the scissors-like action scientific investigation has a determinate field of operations: the explanatory matrix defines basic terms and relations, adumbrates a variety of possible lines of development, may contain still empty slots (solutions to differential equations, places in atomic table, unexplored compounds, possible routes of organic developemnt) indicating objects of future discovery.

e) Butterfield: origins of modern science needed removal of Aristotleian assumptions and replacement by equally comprehensive

5. Transition to Human Studies

a) Two Basic Questions

What in human studies are the set of recurrent and related operations that enter into a normative pattern to yield cumulative and progressive results?

What in human studies constitutes the explanatory matrix that will tend to effect in human studies the transition from a preliminary to a technical stage, such as is illustrated by the contributions to mechanics of Galileo/Newton, to electromagnetics by Maxwell, to chemistry by Mendeleev, to biology by Darwin?

In brief, how can human studies profit by the example set by the natural sciences and emulate their achievement?

b) A Preliminary Answer [Collection, "Dimensions of Meaning"]

It is preliminary in the sense that it does not do more than indicate the general area within which precise answers may fruitfully be sought.

The general area we shall be exploring is meaning. Its significance is revealed in three manners.

Man's knowledge of man and his world is mediated by meaning: contrast of infant and adult's world.

Man's transformation of his environment is directed and controlled by acts of meaning.

Man's direction and control of his own living, of his social arrangements, of his cultural explanations and legitimations, are constituted by acts of meaning.

~~a) Meaning as Mediation~~

~~Meaning as expressive mediates one subject to others, among subjects: by language, by song and dance, by music, by literature, by drawing and painting, by sculpture and architecture.~~

~~Meaning as practical is operational in fulfilling roles and performing tasks; roles and tasks are mediated by skills and crafts; skills and crafts are mediated by making and assembling tools.~~

c) Meaning as Mediation

Meaning mediates between the subject that means and the object that is meant.

Such is the basic mediation. But upon it are constructed cumulative structures of mediated mediacy and mediated immediacy. These occur in the realms of praxis, of expression, of cognition, and of self-appropriation. The development is ever by small increments, with each realm taking advantage of advances in other realms, and progress following any of a variety of possible routes. We shall have to content ourselves with indications of the complexities of the four realms, and leave to the reader to acquaint himself with some of the various ways in which developments may occur and interdependence unfold.

Praxis has operational, institutional, and motivational aspects. All three are spontaneously intertwined in the begetting and care of offspring. Advance extends all three enormously, and in this extending meaning has its mediating role.

In the motivational aspect of praxis, meaning points beyond individual to group satisfactions, beyond satisfactions to human values, beyond human values to their cosmic setting.

In the institutional aspect of praxis, meaning elaborates all the commonly understood and/or // accepted manners in which members of a social group may cooperate through family and mores, state and law, community and education, economy and technology.

Motivational meaning promotes individual operations to cooperations within the instituional framework, where they become the fulfilment of roles and the performance of tasks, where performance is mediated by the development of crafts and the acquisition of skills, where crafts and skills are mediated by the making of tools and assemblies of them.

Cf Method in Theology, chapter 2, The Human Good.

Meaning as expressive mediates subjects to one another. Its basic forms are language and art. The two merge in an original fusion of song and dance, extend into poetry and music, diverge in literature and the arts of drawing and painting, sculpture and architecture.

Language itself is mediated in writing, phonetics, grammar, syntax, rhetoric, poetics, logic, hermeneutics; and there are parallel mediations of art.

Meaning as cognitional begins from common sense apprehensions of man and his world to differentiate into added specializations in science, scholarship, philosophy.

Meaning finally reaches self-appropriation by using its practical, expressive, and cognitional developments to attain the mediated immediacy of its own roots in experiencing, in inquiry, insight, and formulation, in reflection, marshalling and weighing evidence, and rational judging, in deliberation, evaluation, decision, action, and finally in the love that grounds fidelity to the family, loyalty to the state, faith in God.

d) Operators and Development

Development: from below upwards; from above downwards

Below, above, upwards, downwards: not spatial but sublation;
higher is what complements lower; introduces new principle; promotes lower to& end of higher principle; endows it with new and wider significance; preserves it in its integrity

Operators from below upwards promote lower
Questions for intelligence: what, why, how, what for, how often
Questions for reflection: is that so? are you certain?
Questions for deliberation: is it worth while? truly good?

Operator from above downwards is transformation effected by falling in love, being in love, with consequent hope, faith
domestic, humanitarian, religious
broadening individual, kindred, human horizon
offsetting neurotic, individual, group, general bias

e) Clues for upper blade

Partial priority of practical over expressive; of these over scientific; of all three over self-appropriation
Priority of the inarticulate, the absence over the presence of distinction, of implicit over explicit distinction
Unevenness of advance; lags; regressive tendencies; conseq ent confusions