

## Modern Geography: Idiographic or Nomothetic?

by

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TO Richard Hartshorne the discipline of geography "... seeks to describe and interpret the variable character from place to place of the earth as the world of man".<sup>1</sup> This is, in practice, simply a latter day extension of Sauer's concept of *areal differentiation* (originating from Hettner) introduced in 1925.<sup>2</sup> Such "Hartshornian orthodoxy"<sup>3</sup> based upon inductive logic descends from the pre-1940 concentration of geographers upon study of areas of the earth's surface regarded as unique. As Spate notes<sup>4</sup> in strict logic every site on the earth's surface is unique but such an *idiographic* approach will take us nowhere. Understanding or explanation does not stem from a concern with uniqueness. Such a concern offers limited return from its unfruitful conceptions. Progress in geography must come from acceptance of an approach aiding understanding.<sup>5</sup>

Bunge<sup>6</sup> sees better understanding by a reduction of uniqueness through application of scientific method thereby gaining the "efficiencies of generalization". Grouping of factors is an interest of science which is concerned with discovering general principles or laws and is thus *nomothetic* in character.

Schaefer<sup>7</sup> sees Kant as the father of *exceptionalism* and claims that it does not follow that geography has no laws just because Kant thought there were none. Kantian Idealism provided the framework for Hettner's monistic

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<sup>1</sup> Hartshorne, P. *Perspective on the Nature of Geography*. (1st pub. 1959). London, John Murray, 1960. p. 47.

<sup>2</sup> Sauer, C. O. *The Morphology of Landscape*. University of California Publications in Geography II (1925) 19-53 (cited in Hartshorne, 1959, p. 12).

<sup>3</sup> Harvey, D. *Explanation in Geography*, London, Edward Arnold, 1969. p. 79.

<sup>4</sup> Spate, O. H. K. "How Determined is Possibilism?" *Geographical Studies*, Vol. 4, 1957, pp. 3-12.

<sup>5</sup> Wrigley, E. A. "Changes in the Philosophy of Geography" in Chorley R. J. and Haggett, p. (eds.) *Frontiers in Geographical Teaching*. London, Methuen, 1965. pp. 3-20.

<sup>6</sup> Bunge, W. *Theoretical Geography*. Lund, C. W. K. Gleerup, 1966. p. 215.

<sup>7</sup> Schaefer, F. K. "Exceptionalism in Geography". *Annals of the Association of American Geographers*. Vol. 43 1953, pp. 226-249.

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welding of regional studies (as defined by Ritter) and systematic studies (as formulated by Humboldt, Peschel and Ratzel) into what Stoddart<sup>8</sup> sees as an aesthetic rather than functional geography. Hartshorne leans heavily upon the work of Hettner and these two have "... formed a powerful orthodoxy from which geographers have found great difficulty in breaking free".<sup>9</sup> This 'powerful orthodoxy' is the idiographic method.

Concern with uniqueness is antiscientific and fosters a preoccupation with art in academic isolation<sup>10</sup> failing to recognize the multi-variate nature of geography which the 'tools' brought with the 'quantitative revolution' promise to make more scientific.<sup>11</sup>

Concomitant with the adoption of quantitative techniques and recognition of the multi-variate nature of the real world is the view of the interdependence of phenomena functioning as parts of larger systems. No longer can regional boundaries delineate 'closed systems'. Regions are now viewed as 'open systems' requiring an understanding of external as well as internal factors. It was perhaps a neglect of this that allowed neo-determinism to flavour early quantitative work.<sup>12</sup> Recognition of chance processes, the uncertainly principle, as formulated in 1927 by the German physicist Heisenberg has steered geography away from a return to determinism with probabilistic laws now catering for a world "... which is neither wholly rational nor wholly chaotic but a probabilistic amalgam of choice, calculations and chance".<sup>13</sup>

Since Chorley<sup>14</sup> suggests open systems behave 'equifinally'—"...in the sense that different initial conditions may lead to similar end results"—then the nomothetic approach has more to offer geography. Ackerman<sup>15</sup>, noting that the most significant feature of a system is the flow of information within it, views systems analysis as a fundamental integrating concept for geography

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<sup>8</sup> Stoddart, D. R. "Geography and the Ecological Approach", *Geography*, Vol. 50, 1965, pp. 242-251.

<sup>9</sup> Harvey, D. op. cit. 3.

<sup>10</sup> Haggett, P. & Chorley, R. J. "Models, Paradigms and the New Geography". in Chorley, R. J. and Haggett, P. (eds.) *Integrated Models in Geography*. London, Methuen Uni. Paperback, 1969.

<sup>11</sup> Burton, I. "The Quantitative Revolution and Theoretical Geography". *Canadian Geographer*. Vol. VII, 1963, pp. 151-160.

<sup>12</sup> Burton, I. op. cit. 11.

<sup>13</sup> Chorley R. J. and (eds.) Haggett, P. *Frontiers in Geographical Teaching*, London Methuen and Co, 1965.

<sup>14</sup> Haggett, P. *Locational Analysis in Human Geography*. London, Edward Arnold, 1965. p. 19.

<sup>15</sup> Ackerman, E. A. "Where is a Research Frontier?" *Annals of The Association of American Geographers*, Vol. 53, pp. 429-440.

since it recognizes connectivity within a system rather than differences<sup>16</sup> in the way in which new insights and great potential for geographic research are noted by Stoddart<sup>17</sup> who applies systems analysis which links geography with scientific thought offering possible applications of information theory and communication techniques. In this sense the early work of Sauer<sup>18</sup> on cultural diffusion must be recognized.

Removal of inter-disciplinary boundaries, though not all would agree as Schnore<sup>19</sup> claims "our boundaries do not touch..." "... good fences make good neighbours", and the use of theoretical/deductive methodology marks a movement towards nomothetic geography and away from the study in detail of individual cases. To exclude theory is to walk on one foot (see Bunge<sup>20</sup>) since understanding cannot come from a concern with the unique.

Especially since the mid-fifties as increasing number of geographers have begun to apply universal laws to geography in general and human geography in particular. The "break" from tradition began with Schaefer's challenge<sup>21</sup> to the 1939 pronouncement of Hartshorne upon the nature of geography and despite Hartshorne's earnest defence of exceptionalism some modification is apparent in his 1959 work.<sup>22</sup> General concepts and principles (i.e. nomothetic) are regarded as useful for comprehension of the world as a whole and in this quest for explanation statistical methods might offer possibilities. Geography, it is acknowledged is "... in part nomothetic, in part idiographic"...." But Hartshorne<sup>23</sup> insists that geography is a field "... concerned more than most others with studies of individual cases" and that this is "... fundamental to the purpose of geography."

In defence of his views the highly complex situations of geography are seen as incapable of generalization but Bunge<sup>24</sup> claims all occurrences are complex until order is discovered. On Hartshorne's<sup>25</sup> denial of scientific

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16 Crowe, P. R. "On Progress in Geography". *The Scottish Geographical Magazine*. Vol. 54, No. 1, 1938, pp. 1-19.

17 Stoddart, D. R. op. cit. 8.

18 Sauer, C. O. op. cit. 2.

19 Schnore, L. F. "Geography and Human Ecology". *Annals of the Association of American Geographers*. Vol. 51, 1961, pp. 207-217.

20 Bunge, W. op. cit. 6.

21 Schaefer, F. K. op. cit. 7.

22 Hartshorne, P. op. cit. 1.

23 Hartshorne, P. op. cit. 1.

24 Bunge, W. op. cit. 6.

25 Hartshorne, P. op. cit. 1.

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principles at the point where human motivations and decisions are involved Bunge<sup>26</sup> points to advances in psychology and sociology which have proved Hartshorne wrong. Complete accuracy is not the aim of science since it "...compromises its accuracy for generality..." From General Systems Theory we (geographers) "grow" generalized ears" avoiding what Boulding<sup>27</sup> concludes—the existence of the logically unique is no excuse for not trying to understand.

Lukermann<sup>29</sup> explains that even though places and events are, in the final analysis, unique, the fact that they function within a universal framework of interdependence necessitates our viewing them as members of a class if we are to talk about them. Classification is seen by Grigg<sup>30</sup> as analogous with regionalization since it is similarly taxonomic—an analogy made possible by the recent use of statistical methods in regionalization. The problem of the 'geographical individual' has, however, until recently maintained an idiographic concept of regionalization.

Bunge<sup>31</sup> insists that all locations are general while Grigg<sup>32</sup> sees locations as unique when considering 'place' as the equivalent of individual. Whilst properties may be classifiable, locations present a problem. Harvey<sup>33</sup> has clarified this by distinguishing between absolute space and relative space. In absolute space locations are unique but when a relative view is taken locations become unique only within a selected co-ordinate system. Overall, in a relative view of space, locations are not unique.

Use of relative location has enabled spatial model building using geometrical analysis (e.g. the work of Dacey<sup>34</sup> in the 1960's as well as earlier work by Christaller and the use of statistical surfaces (e.g. trend surfaces) to test hypotheses.<sup>35</sup> Burton<sup>36</sup> recognized the value of applying graph theory to geographical problems as an example of theoretical geography. The logic of mathematics offers a broader, more flexible base for spatial concepts than idiographic inertia.

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<sup>26</sup> Bunge, W. op. cit. 6.

<sup>27</sup> Berry, B. J. L. "Approaches to Regional Analysis-A Synthesis, *Annals of the Association of American Geographers* Vol. 54, 1954 pp. 2-10.

<sup>28</sup> Bunge, W. op. cit. 6.

<sup>29</sup> Lukermann, F. "Geography as a Formal Intellectual Discipline and the way in which it Contributes to Human knowledge", *Canadian Geographer*, Vol. 8, No. 4, 1964, pp. 147-172.

<sup>30</sup> Grigg, D. "The Logic of Regional Systems", *Annals of the Association of American Geographers*, Vol. 55, 1965, pp. 465-491.

<sup>31</sup> Bunge, W. op. cit. 6.

<sup>32</sup> Grigg, D. op. cit. 30.

<sup>33</sup> Harvey, D. op. cit. 3.

<sup>34</sup> Dacey, M. F. 1961—A Graph theory interpretation of Model Regions, *Papers and proceedings of the Regional Science Association*, Vol. 7 pp. 29-42.

<sup>35</sup> Haggett, P. & Chorley, R. J. op. cit. 10.

<sup>36</sup> Burton, I. op. cit. 11.

Since all mathematics can be applied to space it offers great potential to geography and Hagget<sup>37</sup> claims geometry is a neglected aspect basic to the original Greek conception of geography. Recent use of geometry has restored the "tri-partite balance"<sup>38</sup> of earth science, social science and geometrical science integrated in terms of set theory by Haggett.

Geometry represents one of five major themes around which geographers organize their work :—

- (1) Areal differentiation—dominated geography in the past.
- (2) Landscape—as developed by Sauer and the Berkeley School.
- (3) Man-environment (ecological)—development within themes one and two by both possibilists and determinists but more succinctly by Stoddart etc.
- (4) Location (or spatial distribution)—the source of much recent work on Central Place Theory, Location Theory etc.
- (5) The Geometric theme—recently revived in graph theory and topology. (See Haggett,<sup>39</sup> and Harvey,<sup>40</sup>)

Of these themes the first is essentially idiographic whilst the remainder (and particularly the last two) involve the search for generic concepts seeking to "... establish general statements for repeatable events and processes".<sup>41</sup> Model-building has proceeded hand in hand with this, with recent emphasis upon the latter themes. Since a model is "... a simplified structuring of reality which represents supposedly significant features of relationships in a generalized form,"<sup>42</sup> this marks a growth of scientific analysis in a formerly idiographic discipline. The ideas of the quantitative revolution are now part of the conventional wisdom, marking steps in the development of theory. Without theory, Burton<sup>43</sup> cogently observes, everything is unique. There is no "... sieve through which the myriads of facts are sorted...."

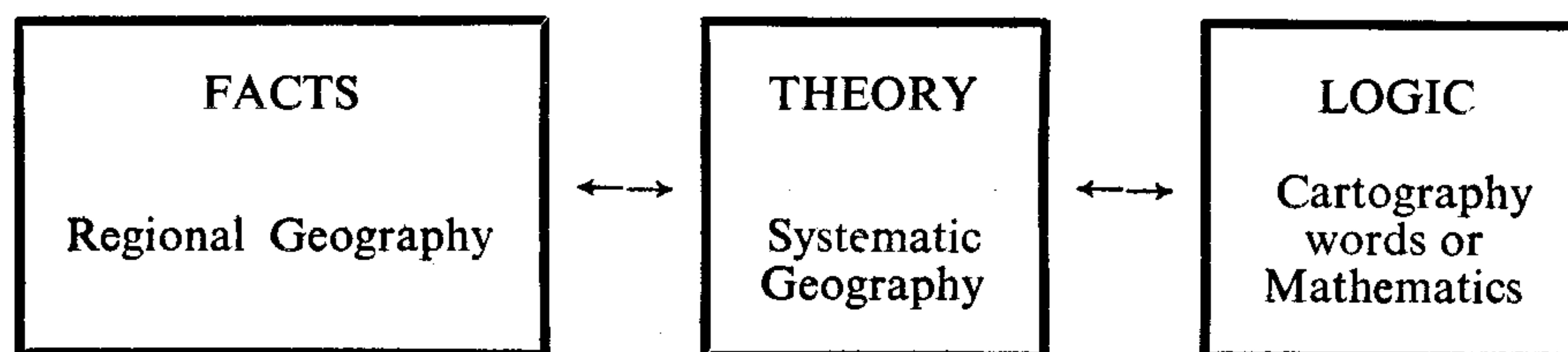


Fig. 1.

**THE INTERACTION OF FACT, THEORY AND LOGIC IN GEOGRAPHY**

(Bunge, 1963, p. 37)

<sup>37</sup> Hagget, P. op. cit. 14.

<sup>38</sup> Haggett, P. op. cit. 14.

<sup>39</sup> Haggett, P. op. cit. 14.

<sup>40</sup> Harvey, D. op. cit. 3.

<sup>41</sup> Haggett, & Chorley, R. J. op. cit. 10.

<sup>42</sup> Haggett, P. & Chorley, R. J. op. cit. 10.

<sup>43</sup> Burton, I. op. cit. 11.

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Theory is not well-developed in geography and thus it is difficult to obtain an explicit definition of geography<sup>44</sup>. Hypotheses are yielded by the theoretical deductive method for testing.

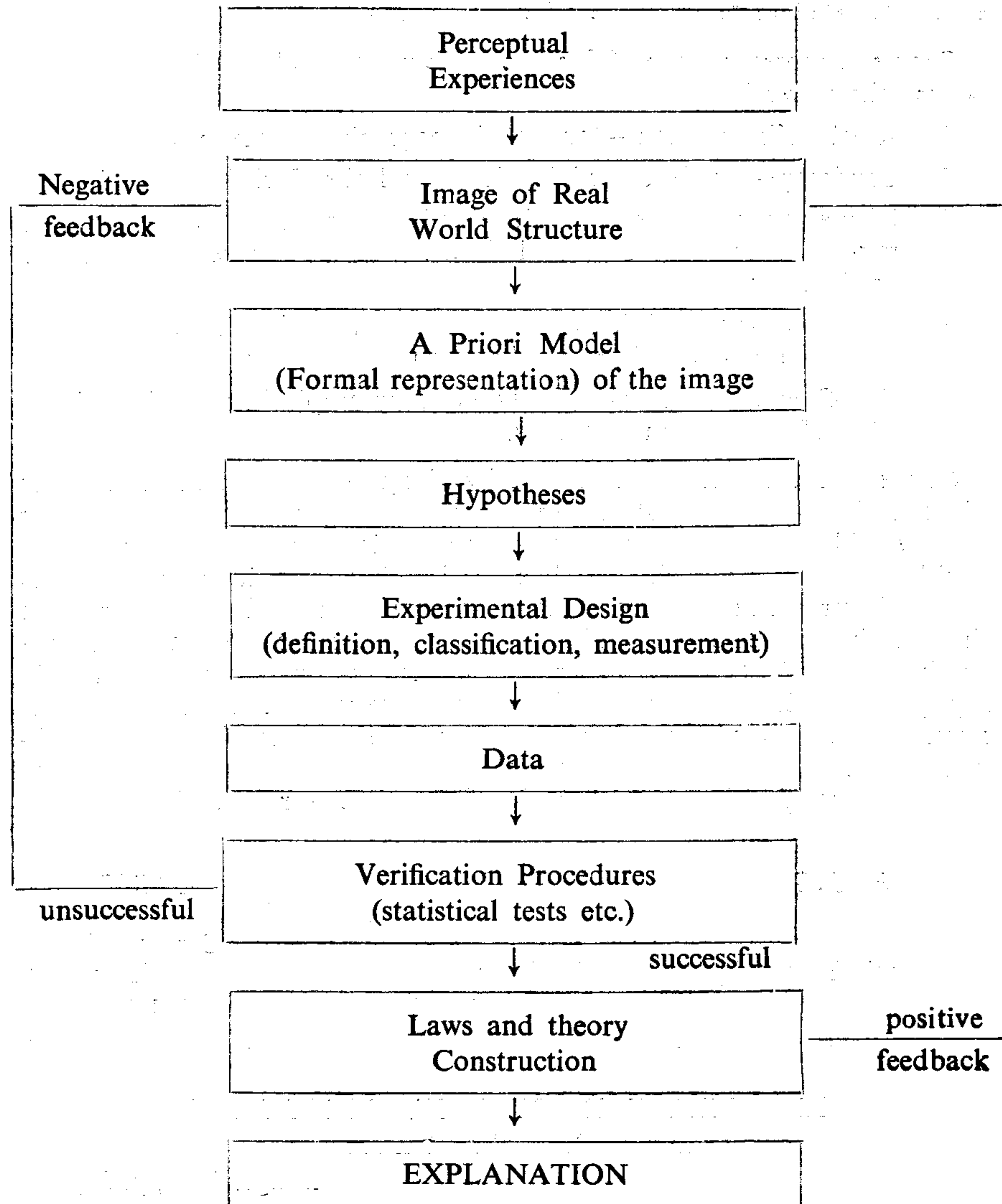


Fig. 2

THE ROUTE TO SCIENTIFIC EXPLANATION

(Harvey, 1969, p. 34).

<sup>44</sup> Harvey, D. op. cit. 3.

Testing of hypotheses is now possible as a result of high-speed data processing enabling the complexities of the real world to be incorporated into simulated models of reality. The spread of models is creating areas of common interest in what were once specialisms within geography providing insight into the man-environment interaction system as well as enabling predication of future trends. As James comments<sup>45</sup> there is now a mutual inter-dependence and not a dichotomy of inductive and deductive methods. Observations (inductive) are essential to test theory (deductive). Mathematical methods, then, not only provide an exact way to formulate hypotheses but a reliable way of testing them is provided by statistical tests of significance.

Progress is marked, in Haggett's<sup>46</sup> terms, by the sound of plummeting hypotheses. From successful verification, theory and laws can then be developed to afford explanation in geography.

Schaefer sees regional geography as the laboratory in which theory can be tested thus demonstrating that regional and systematic geography are inseparable.<sup>47</sup> Geography is moving away from the regional concept criticized by Kimble<sup>48</sup>. Regional studies are no longer just portraits. As geographers become users of scientific method they are increasingly providing blueprints showing how regions work. The product of scientific method must be seen as Jones<sup>49</sup> warns-as a generalization and not a deterministic law of cause and effect. With this safeguard in mind geographers can turn, increasingly to nomothetic concepts.

Soviet geography has also rejected an idiographic approach in favour of science-based geography and thus parallels Western developments.<sup>50</sup> Throughout geography there is a growing unity in technique and approach. Dichotomies are becoming dualisms as quantification and model-building grow out of dissatisfaction with idiographic geography.<sup>51</sup>

Sophisticated techniques are not enough. Theory offers controlled, consistent and rational explanation of events viewed nomothetically. With this trend towards precision and the search for macrocosmic order Harvey's<sup>52</sup> slogan for the seventies is appropriate: "By our theories you shall know us".

<sup>45</sup> James, P. E. "On the Origin and Persistence of Error in Geography," *Annals of the Association of American Geographers*, Vol. 57, 1967, pp. 1-24.

<sup>46</sup> Haggett, P. op. cit. 14.

<sup>47</sup> Bunge, W. op. cit. 6.

<sup>48</sup> Kimble, G. H. T. "The Inadequacy of the Regional Concept", *London Essays in Geography*, ed. Stamp and Wooldridge, Lond., 1957.

<sup>49</sup> Jones, E. "Cause and Effect in Human Geography" *Annals of the Association of American Geographers*, Vol. 46, 1956, pp. 369-377.

<sup>50</sup> Mathieson, R. S. "Quantitative Geography in the Soviet Union", *The Australian Geographer*, Vol. XI, No. 3, 1970, pp. 299-305.

<sup>51</sup> Burton, I. op. cit. 11.

<sup>52</sup> Harvey, D. op. cit. 3.