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CHAPTER 3

INTEGRATION IN GEOGRAPHY: HYDRA OR CHIMERA?

Anne Buttimer
Department of Social and Economic Geography
University of Lund
Lund, Sweden

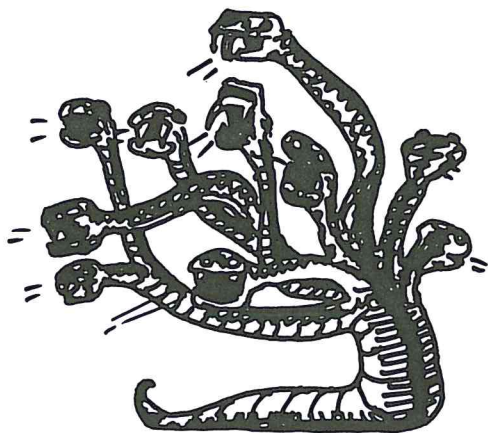
Integration: how many and diverse are the connotations of this word! Emotional responses can range from fascination to panic. For about a century now, geography texts have held up "integration" as a Holy Grail, a *nec plus ultra* many today believe that if the discipline is to survive in the future it must reintegrate its many branches, project an integrated self-image and bolster its claims to an integrated image of the world. Well, how has such rhetoric worked in the past? Have geographers fared better with integrated or dispersed world views? And regardless of intellectual preference, what has geography gained or lost through efforts to align its research and teaching with ongoing societal interests?

Can integration make monsters?

I'd like to introduce here two imaginary creatures, the Hydra and the Chimera, hoping that they may raise some doubts and queries about the issue of integration in geography.

* * * * *

Hydra was a many-headed monster which grew back two heads every time one was cut off. Biologists still use the term to denote a genus of freshwater polyps which can reproduce themselves from parts that are cut off.

**HYDRA**

The Hydra was indestructible until Hercules found the right trick, i.e., to cauterize each neck after severing the head.

Chimera was a fire-breathing monster, usually represented as a composite of lion, goat and serpent. The Chimera was normally quite innocuous despite its grotesque profile, nor was there any implication that its various parts were organically connected.

**CHIMERA**

It was finally conquered by Bellerophon, riding the winged horse, Pegasus, whose hoof once made a hole in the rock on Helicon out of which sprang Hippocrene, the fountain of the Muses . . .

In the ecumenical spirit of Greek parables, then, I wish to examine the issue of integration as this may resonate throughout many facets of thought, technology and sociality in our Western experience. There may be special nuances in the case of geography, but it would be hard to argue that its present day dilemmas are that radically different from those experienced by

feature of education throughout all the colonial colleges such as Dartmouth, Princeton, Yale, Columbia, Rutgers and Brown. Up to 1807 one could still find in the laws of Harvard College that nobody could be admitted until they had demonstrated sound knowledge of the "compendium of geography". Prescribed textbooks included Newton's *Principia*, Benjamin's *Philosophia Britannia*, Varenus' *Geographia Generalis* and Gordon's (later Guthrie's) *Geographical Grammar*. Why should students find such a field attractive? Why should the college believe that such education was desirable at this moment when a colony was trying to find its feet?

Two distinct kinds of justification can be found among the chronicles of the time. On the one hand, the Newtonian doctrine opened up horizons on the world which could not only be articulated in elegant mathematics, but could also be explained in terms of natural law. In other words there was an integrated picture of the whole which linked geography to the world view of scholars in philosophy, history, science and politics. No wonder so many of these early geography students went into Law School and transposed this vision to Revolution and the War of Independence! On the other hand, for a pragmatically-oriented society, there was another case which could be made for education in geography, viz. as training base for navigation on the Yankee Clippers, as information background on the feasibility of trade and commerce, as background understanding for history, ancient and modern, and no doubt as preparation for handling the affairs of this new and virtually unexplored land. Intellectually speaking, a case could be made for the reconcilability of these two positions. Historically, however, they led to two very different outcomes. The first led to impressive academic success: geography in its Newtonian garb held an esteemed position in all the liberal arts colleges of New England. The second led to its demise, its devaluation and dismemberment.

. . . as America has alternatively turned out toward the world or inward toward its own affairs, the thoughts, attitudes, and practices in geography have reflected those shifts. In a very real sense, the country's wars have marked the beginning and the end of the alternate periods of internationalism and isolationism . . . (Warntz, 1964, p. 158)

Let me illustrate, with examples which Warntz also supplies. After the War of Independence, when the delegates met in Philadelphia to draft a new constitution in 1787 (they were all graduates of these New England Colleges) what did they have as common ideology except this notion of natural law? Positive law was to follow the dictates of natural law - one should see the regulation of this new society in terms which reflected the nature ("constitution") of that society itself. The founding fathers held firm ideas concerning the United States, with its interrelated social and physical phenomena, and they were particularly sensitive to the special geography of states' rights (Warntz, 1964).

"With genuine enthusiasm," wrote Woodrow Wilson in 1908, "albeit without approval, the founding fathers followed the lead of Montesquieu

NATIONAL ATTITUDES AND COLLEGE GEOGRAPHY

(Adapted from Warntz, 1964)

	1650	1787	1861	1914	1941
PERIOD	Colonial Period to the Revolutionary Way and Constitutional Gov't	Founding of the Republic to the	Civil War through World War I	World War I through World War II	
ATTITUDES	Internationalism	Isolationism	Internationalism	Isolationism	
STATUS/ORIENTATION	General Geography prominent in New England Colleges "Use of Globes" in the framework of <i>Natural Law</i>	Geography <i>dismissed</i> from major colleges Emphasis on regional description - uniqueness of places - in framework of <i>Natural Rights</i>	Geography <i>re-established</i> in colleges <i>Evolution</i> Environmental Determinism	Special geography grew in public colleges, and declined in prestigious private colleges Regional synthesis and <i>microgeography</i> as reaction to environmental determinism	

under whose hand politics turned into mechanics. The imitation of the checks and balances of the solar system was a conscious one, yielding a balancing of powers among president, congress, and the courts, and in the congress between big and little states" (Warntz, 1964, p. 55).¹

¹ John Q. Stewart (1953) "likened the body of the Constitution to principles of a rigorous 'field theory' . . . while the Bill of Rights not too fantastically can be said to incorporate corresponding 'quantum conditions'. In politics as well as physics 'the contrast between mass regularity and individual spontaneity is subtle and paradoxical'. The

other fields. Here I select two major thought styles, organicism and formism (Pepper, 1942), each with a noble ancestry in Western intellectual traditions. My contention is that as each of these thought styles become integrated within the institutionally-defined societal interests of particular times and places, they became monsters. Vanquishers of monsters often assumed the features of their victims, suppressing any possible recurrence of those creatures until memories had been healed and heroes buried. My point, then, is that integration may not be the solution of geography's current identity crisis; rather it may be the problem.

I consider integration as process rather than product, as ongoing tendency within various spheres of life, rather than *fait accompli*. Integration in geography can be considered in terms of three main spheres, or planes of interest: disciplinary organization ("structural"), intellectual orientations ("conceptual") and relevance ("societal"). On each of these planes the integrative process stands in dialectical tension with its opposite, viz. individuation or dispersion. *Structurally* speaking, the integrative process concerns the status of and interaction among various subdisciplines of human and physical geography, as well as the discipline's position (identity) within the overall academic division of labour. It is on this plane that the issue of how an individual practitioner, department or research team negotiates relationships with the corporate structure of the discipline may be examined. *Conceptually* speaking, the integrative process raises the issue of cognitive foundations or research styles which characterize the discipline - whether there may be a body of theory and method which provide an intellectual core for all branches of geographic enquiry. On this plane the main actors are thus not individual persons, research teams or departments; they are rather thought styles, and they range from highly integrated images of reality, to highly dispersed ones. *Societally* speaking, "integration" directs attention to geography's actual or potential engagement in the public (environmental or social) issues of its time and setting. Here the main actors are issues, problems, or the political priorities of places, regions, or nations.

The central tension on each of these planes, as I construe it, is one between *integrity* and *integration*. At the structural (disciplinary) level, for example, practitioners may seek a level of involvement in the collective life of geography which seems appropriate for the ongoing task; each individual department or research team, given its resources, aims and context, could define the degree of engagement in national or international networks or organizations which would facilitate the integrity or autonomy of its existence. On the other hand, administrative, governmental and managerial interests either within or without may wish to impose an integration on all. At the conceptual level, each thought style has its own claims to truth, to relevance, to the dispositions of particular practitioners and settings; its integrity is threatened when it becomes force-fitted to the role of universally valid paradigm at any time or place. At the level of societal relevance, the main concerns are problems, questions, places or events which need to be elucidated, solved, mourned or celebrated. Integrity of response would demand sensitivity to context, whereas integration might require that each of these issues be seen as one special case of general policy, theory or natural law.

On each of these planes, therefore, *the tension between integrity and integration* takes on distinct meanings, and yet the planes interpenetrate. The extent of their interpenetration (from loose association to full overlap) is also involved in the term integration. Full overlap at any moment might indicate totalitarianism, complete separation might suggest irresponsible anarchy.

Let me now state my central thesis. I believe that geography as a scholarly discipline can remain creative and seek integrity only when there is ample scope for a playing out of those tensions between integrative and dispersive forces, a constant dialectic between stability and innovation, between security and adventure, on all three planes, or spheres, of its existence. What this essay endeavours to demonstrate is that whenever the integrative process approaches completion - either in terms of institutional identity/structure, paradigmatic certainty, or public relevance - then something akin to sclerosis threatens, and creativity is harnessed mainly for routine operational tasks which become ultimately absorbed and trivialized. Proclamations made about the identity and value of geography have tended, especially throughout the disciplinary period, to use arguments and figures of speech which are designed to "fit" the dispositions of the potential audience at particular moments of history. Those arguments which won produced somewhat of a Pyrrhic victory; those which failed remained underground, surfacing later when the audience was more ready and then they too were absorbed, integrated, as the rhetoric supporting a particular institutional structure or mode of societal relevance. What the entire essay aims at demonstrating is that integration as *fait accompli* may be the kiss of death for intellectual creativity. And the implication for today is that the integrative process, in both its structural (disciplinary) and societal (relevance) senses, demands vigilance from the conceptual side; that geographers need enough self confidence to support a pluralism of research style and a sensitivity to history as well as to the future.

* * * * *

As prelude to my main essay, let me tell a tale from the pre-disciplinary period, from a time before nations sought to integrate their geographers via university curricula and chairs. This story, from Colonial America, raises certain curiosities about the strengths and limitations of integrated versus dispersed world views as rhetorical base for geography within a particular constellation of ideological and material challenges.

"USE OF THE GLOBES" IN AMERICAN COLONIAL COLLEGES

William Warntz tells a fascinating tale about geography at Harvard from the mid seventeenth century on (Warntz, 1964). One of the earliest faculty positions at Harvard was that of the tutor who would teach geography, the elements of plane geometry, natural philosophy and astronomy. A study course on "The Use of the Globes" was a standard

Let's now look to the second kind of rationales offered for keeping geography in college curricula. A remarkable speech on the usefulness of geography was delivered by one Jared Sparks (class of 1815) who was later to become president of Harvard University. He claimed that any student of history should know geographical facts of location, topography, distance and climate; he argued that any trader, missionary, or explorer, should know "the lay of the land", he even chided the public press for its apparent ignorance of the where and wherefore of political treaties, battles and boundaries. In a word, he made the case for the usefulness of geography and suggested, moreover, that it should be an essential part of ongoing education for all citizens. In 1816 geography was abolished from the Harvard curriculum. The prospect of having one field which could deliver edifying information on the "surface of the earth" had become ludicrous: better to allow mathematics to deal with the projections and plane geometry, allow historians to handle whatever was necessary to understand ancient history, allow the Yankee Clippers to work out their own trade routes and navigation skills and the Law School to worry about the constitution and the Wild West. A student could find all these in the *College Guide* and make his own integration if he wanted that, and more likely than not he would not call it geography.

What this story suggests is that as long as geography had an integrated world view, intellectually speaking, it could reach out toward an understanding of the whole earth and therefore win the respect of other academic fields; when it sought integration into the social interests of its times, it eventually lost credibility as an intellectual discipline and was demoted to the school level or fragmented among other fields. But is this too simplistic an interpretation? Viewed in another light, one could say that geography's success in transposing natural law to terms that fitted the political and pragmatic needs of its day during the seventeenth century and eighteenth century led to a situation not unlike that of parents whose children grew up, left home, and took on other names. The offspring would have to choose between: (a) a dutiful resuscitation of the family tradition by bending and stretching the categories beloved by their parents; (b) create, or become part of, a new world view; or (c) get on with the challenge of solving problems as they arose in whatever way seemed feasible.

* * * * *

social atom or corpuscle engages in action 'which would be disruptive or impossible for the multitude. But physicists did not find this out until our own times!'" Warntz applauds this global vision and claims that political science, based on mechanics, was far more sophisticated than the physical science of the day. Various forms of physical energy and their conversion, he claims, were yet to be fully described, but the analogous social energies such as reason, feeling and authority and their rich interplay were spelled out in the judicial, legislative, and executive branches (of the constitution) (Warntz, 1964, pp. 155 ff).

I suspect, that this was the challenge facing discipline-makers of the late nineteenth century in America. There they stood, Janus-like, with one face turned toward Europe (Germany mainly) and the other toward the Land of Plenty and its Manifest Destiny. And it was from Europe that the most convincing new metaphors would come: from Humboldt they would receive a perspective on the Cosmos which was even more compelling than the old one based on Newtonian natural law ("organism"), and from Ritter, via Hettner, they would receive convincing evidence about the value of a formistic approach (the "map").

Now the latter half of the nineteenth century was a time of considerable turmoil in North America with its rapid industrialization, big business and urbanization propelled by railroads across the nation. And in everybody's consciousness, there was no doubt, the impending Civil War. Poets and novelists were already decrying the profligate waste of natural resources, and vainly did surveyors like Powell warn about the ecologically harmful effects of the grid system in chopping up territories in the arid west. Scarcely daunted by the myth of the Great American Desert, immigrants swarmed westwards; torn perhaps between their need to preserve their own ethnic traditions on the one hand, and yet be part of the evolving frontier society on the other.

Why then did the early founders of the discipline at the American Geographical Society (1851) and at Wharton School in Pennsylvania (1854), and at Harvard (1870) launch their case with metaphors of distinctly European (Germanic) origin? Why, in such a pioneering society, should environmentalism and even environmental determinism become overriding themes? Let's now look at these two metaphors, organism and map, and ask first why European geographers at the same time were entertaining them. For at least a whole generation, I suspect, the authority of European masters was enough to make them credible to Americans.

REARVIEW MIRROR FROM 1984

Scarcely a century ago geography sought status as a discipline, claiming chairs in universities and a strengthened role in school curricula. So generations of scattered enquiry into the relationships between humanity and earth - a vast treasure of myth and metaphor, scientific observations and theory, art and alchemy - had to be somehow harvested. The search for definition of what geography was or could become entertained members of geographical societies and associations of school teachers. One of its selling points would be the promise that this field could provide an integrated approach to education. Two key definitions of geography's agenda were tossed about at the time - one emphasizing the organic nature of humanity's interactions with milieux (the "organism"), the other emphasizing the spatial forms of phenomena, cultural as well as physical, on the surface of the globe (the "map"). There were at least two other competing metaphors, "mechanism" and "event", and I suspect that throughout the disciplinary era, all four were present (Buttimer, 1982). And these four by no means exhaust

the full range of symbolic transformations which geographers have invented throughout the world (Berque, 1982; Bonnemaïson, 1983). Each, however, would rally a distinct intellectual heritage, a distinct theory of truth, and a distinct array of relevance for the world of its time. To illustrate what I mean by these root metaphors, I shall refer to particular writings, but the intention is obviously not to stereotype or label individuals. Most of the creative ones mixed their metaphors and moved among them with varying degrees of grace and ingenuity. The key actors in this account are *thought styles*, rather than individual personalities.

While some early practitioners of geography busied themselves with exemplifying these alternative stances, the world they sought to elucidate (and educate) was itself changing. And the closest horizon was that of the Nation, whose Ministry of Education was to grant or deny them status as an academic field. Whatever its epistemological preamble, geography would seek to demonstrate its relevance to the ongoing interests of that nation; intellectual integrity, and the social organization of the discipline, negotiated somehow with political priorities. This does not deny, of course, that some of our most creative pioneers pursued research of global interest, seeking understanding of relationships between humanity and milieux quite independently of domestic politics. I suggest, however, that for each of these two major competing definitions of geography which were voiced around the time of disciplinary establishment: (a) there was a "root metaphor" as cognitive justification; (b) that this was applied vigorously in geography's pedagogical and research agenda; and (c) that as the metaphor became increasingly integrated within the ongoing interests of particular nations, it became a monster. At the risk of exaggeration, and for the moment overlooking all those marvellous exceptions to the trend, and the crazy mixture of metaphors and eclecticism which one finds in the archives, let me outline one version of the story. My examples will be highly selective and taken for the most part from North America. The main contours of this account, however, may hopefully find resonance on both sides of the Atlantic.

The "organism", a metaphor used to advertise and defend geography's place in the curriculum of academy and school in at least four major traditions (Germany, France, England and the United States) was one which in the late nineteenth century evoked both cosmic and immediate experience (Berdoulay, 1980). It had, throughout the Romantic Period in Continental Europe, evoked marvels in poetry and art, social revolution and intellectual creativity in philosophy and the natural sciences (Livingstone and Harrison, 1981; Stoddart, 1966). Once harvested for the goal of disciplinary establishment within particular national traditions, however, the organism was obliged to take on the mantle of its times, as it were, and speak in a vernacular which would be comprehensible within a particular social and academic milieu. It became transposed to *organicism* and applied to a whole range of enquiry from imperial politics to cycles of erosion, to issues of race and territory, climate and health, frontiers of settlement and arteries of trade - in a word, anything which stirred curiosity among people and governments in the imperial nations. A metaphor which was initially

grounded in the human experience of a single body, a symbol for the self-renewing organic nature of life itself, became transposed to something resembling that imaginary creature, the Hydra.

Another definition of the field was meanwhile making a reappearance. Far more defensible to fellow-researchers was the less ambitious identity which Immanuel Kant had supplied: geographers should deal mainly with the spatial aspects of reality - distributions, locations, areal associations of phenomena (Hartshorne, 1939; de Jong, 1955). And a vast agenda indeed was implied here: mapping the world and sketching the morphologies of everything between Earth and Sky - topography, resources, landscapes, settlements, populations, boundaries, settlements and ground rents (Dickinson, 1969). Its crowning glory would be the regional *gestalt*, fashioned like a *spettekaka* with tangibly-measurable layers of observable patterns. Hettner called this a chorological science and indeed won many followers, not least among those the Scandinavians (Hettner, 1927). But toward what kind of integration might such an agenda lead? Could this be an intellectually-defensible picture of reality, or if so, how might it be evaluated within the overall division of labour among scientific disciplines? I suggest that as this metaphor became integrated within its host establishment, a new kind of imaginary creature was born, the Chimera.

At first glance, then, one finds here two contrasting images of geography as a whole. The first promises an organically integrated vision of reality, the latter a dispersed one - each pattern and form having its own nature and shape. The "organism" demands a belief in unity, its style synthetic rather than analytical; the "map" allows for analytical precision and infinite detail, and makes no claims on the practitioner's own integration into a particular ideology of the whole. These metaphors appealed for cognitive credibility and societal relevance within a particular set of cultural, ideological, material and of course, military circumstances. But the discipline had also to maintain and bolster an identity among fellow-academics, and assume a position on the perennial debate over "science" versus "humanities". Whether one looks at integration in terms of epistemological integrity or institutional security, one has to examine how these were negotiated within the context of particular national interests as well as transnational academic knowledge interests. And in this negotiation one finds a fascinating array of mixed metaphors, the same individual often using organicist rhetoric in preambles to texts, treatises or presidential addresses, and then proceeding to display a formistic method in his elaboration of content. Several questions arise then: does power of conviction depend on its apparent relevance to ongoing social interests? Does it depend on the degree of structural (disciplinary) integration which the profession has achieved at a particular moment? Does geography fare better when the prevailing paradigm stems from integrated or dispersed images of reality?

FROM ORGANISM TO HYDRA

To imagine the world as an organic whole has been the catalyst for creativity among artists, scientists, poets and politicians throughout the world. One finds this metaphor in the Vedic myth of Purusa, the pre-Socratic philosophers and the Hippocratic School of medicine, in the Tao of Chinese poetry and legend, in Paul of Tarsus' definition of the church as Mystical Body, and in the world views of Leibniz and Spinoza. The powerful appeal of the "organism" may be explainable in terms of its grounding in the most universal and intimate experience of all humans, i.e. the experience of one's own body. Each body, composed of many distinct and unique parts, obviously functions as a whole; each human life journey, too, moves through stages and cycles, all the time dependent on reciprocal relations with other lives and milieux. Analogies to corporeal and social experience, thus, have allowed popular acceptance for such expressions as the "body politic", "arteries of circulation", "veins" and "limbs". The "face of the earth" has been named and claimed with every conceivable part of the human anatomy: brow, eyes, nose, mouth, teeth, neck, arms, fingers, shoulders and feet. Early textbooks in geography are filled with metaphors of circulation, maturation, metabolism and synergy; the most powerful unifying metaphor of all being the hydological cycle (Tuan, 1968, 1978).

In his introduction to *Cosmos* (trans. 1844), Alexander von Humboldt summarized the value of this organic conception of the whole:

Nature, considered rationally, that is to say submitted to the process of thought, is a unity in diversity of phenomena, a harmony blending together all created things, however dissimilar in form and attributes, one great whole animated by the breath of life. (Vol. I, p. 2)

Long before his *magnum opus*, however, Humboldt had demonstrated that ingenious ability to combine and integrate the two great intellectual movements of his century: that of Romanticism and that of the Enlightenment. Organicity, for Humboldt, was a feature of *Cosmos*, not simply of Planet Earth, or its diverse regions. Besides, none of the fascinating particulars - of the High Andes, continental plains or island peripheries - could make sense until all was placed within a cosmic horizon. The most important aim of geography was to enable the observer to realize that "Nature is not dead matter. She is, as Schelling expressed it, the sacred and primary force . . ." (*Cosmos*, Vol. I, p. 379). "In order to depict nature in its exalted sublimity, we must trace its image, reflected in the mind of man, at one time filling the dreamy land of physical myths with forms of grace and beauty, and at another developing the noble germ of artistic creation" (*Cosmos*, Vol. II, p. 20).

In many ways von Humboldt articulated the cosmopolitan vision of the early 1800s, with its overtones of Hegelian idealism and its fervent celebration of that freedom of spirit poetically announced by Fichte, Schelling and others. He tempered the excesses of idealism, however, with a

commitment to scientific precision: art and science were united in his approach (Bunksé, 1981). But his message fell on a "Hydra" world, Cosmos became dismembered in thought and in life, as wars and treaties chopped up continents and oceans, as national fervor waxed and waned, and as academies set about organizing and "integrating" various disciplines and sectors. In order to understand the appeal of Humboldt, and the attractiveness of the "organism" as root metaphor in geography, one should bear in mind something of the milieux and *Zeitgeist* of nineteenth century northwest Europe, especially the Hydra-like nature of movements which swept through at that time.

In Europe, particularly after the Napoleonic era, there was a vigorous burgeoning of the *Nation State*, national cultures, often resting their identity claims both on the distinctiveness of their "home" territories and on their expansionary dreams of empire and colonies. Across national lines, revolutionary movements were expanding and contracting, often begetting constellations of sub-movements and sects. In the wake of the Crimean and American wars too, Europe was undergoing a profound transformation with the growth of industry and the expansion of big cities.

A Promethean (of Faustian) mythology of progress stirred not only the rational development of technology, economic and urban growth within the Metropole, but drove millions to the "pioneer fringe" all over the globe. Associated with this was a vast curiosity about nature itself, not only as object of scientific enquiry in the years after Darwin, but also as challenge for geographical exploration - Tien-Shan or Gobi, Northwest Passage or the South Seas - all would be heartily welcomed by geographical society, government and the public press. In post-Darwinian days, of course, the natural sciences were to experience unprecedented leaps forward, while historians and anthropologists would argue over alternative theories of human evolution. Nature itself supplied not only scope for lessons to be taught to schoolchildren; it was attractive recreation ground for a rapidly-urbanizing people, wellspring of inspiration for imaginative poets, painter and musicians still guarding the legacies of Romanticism.

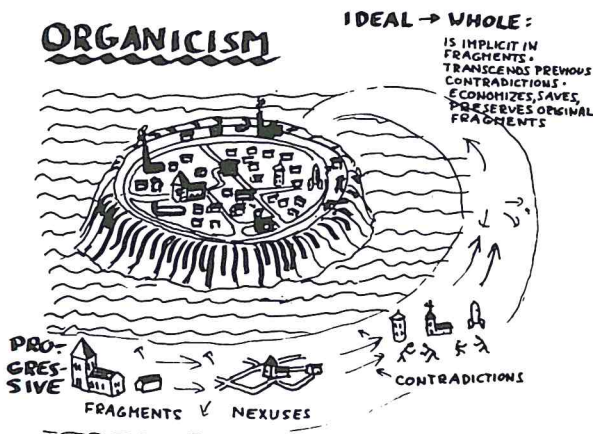
Common to most settings, too, there was a drive toward universal education. School curricula were to be expanded and improved and a fixed school-leaving age imposed. Adult education programs, farmers' cooperatives and folk high schools sprang up and a general will for self-improvement throughout all sectors of society became manifest in law and practice. Geography was to become an essential element in this move toward universal education. It was to address itself to the major needs of the day and argue about its indispensability for the edification of young citizens.

Each country in Europe has no doubt its own version of history at this time. At the risk of over-generalization, one could say that France was busily implementing the lofty ideas (and patching up the wounds of) her Revolution, Germany was building the spirit of nationhood, England anchoring its claims to an empire on which the sun would never set, and America creating a new frontier society. The "organism" demonstrated a remarkable plasticity in its adaptation to all these national interests. The

myriad ways in which organism was articulated in the research and teaching of various fields in Euro-America cannot, of course, be described here. More pertinent perhaps would be a look at the theory of truth which underlies this metaphor.



An organicist world view, according to Steven Pepper, sees every event in the world as more or less concealed process. It envisions world reality as first a scattered array of fragments which are attracted or repelled by one another until they congeal around nexuses. Through continuous dialectical processes of conflict and competition, these nexuses eventually become integrated into a higher unity, called the organic whole. A distinction is also drawn between so-called "materialist" and "idealist" interpretations of this organic whole (Pepper, 1942).



Materialist or "progressive" categories of organicism are (1) *fragments* of experience, which appear in (2) *nexuses* or connections which spontaneously

lead as a result of the aggravation of (3) *contradictions*, gaps, oppositions, or counteractions to resolution in (4) *an organic whole*. Idealists would further postulate that this organic whole is found to have been already (5) *implicit* in the fragments, and to (6) *transcend* the previous contradictions by means of a coherent totality, which (7) *economizes*, saves, preserves, all the original fragments of experience without any loss (Pepper, 1942).

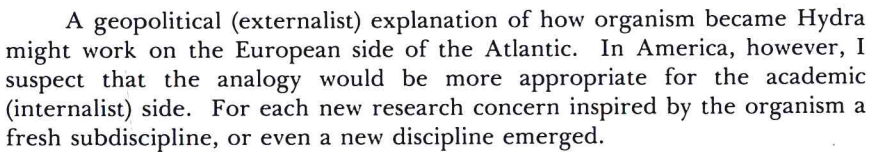
For idealists, the epitomal statement of this world hypothesis could be found in Hegel. Without the teleology of a Hegelian view of progress which unfolds from maximum fragmentariness to ultimate integration, the metaphor as a whole loses coherence. Organicism rests on a *Coherence Theory of Truth*. Each fragment of thought as well of life is forever restless in its "abstractness" until driven by its nexus to its exact opposite which is also its complement. This progressive unfolding resolves itself into an integration, a higher synthesis, which embodies the fragments, transcends and harmonizes them in a richer and more concrete whole. The process continues until there are no more nexuses flying around in search of satisfactions, but all are tied in within one absolutely coherent organic whole, viz. the Hegelian Absolute. For many scholars, of course, this kind of metaphysics is anathema. The association of this world view with Bismarckian politics, or with imperial expansionism, has simply made it repulsive to a liberal political tradition. Creed dogmatism, on both materialist and idealist sides, has also served to repel the empirically-oriented. To understand its enduring appeal one has to peel back the layers of intellectual history - to the pre-Socratics and some Renaissance scholars in the West to Taosim in the East to witness that enormous variety of uses which humans have made of this root metaphor.

In vain one seeks to associate this metaphor exclusively with creed or culture, personality or period. One finds elements of organicism in the work of anarchists and conservatives, positivists and anti-positivists, scientists and humanists around the turn of the century. The explanation may lie neither in the metaphor nor in the material circumstances in which it was articulated; rather it may lie in the realm of myth, viz. the Promethean dream of progress and modernization, freshly interpreted through Goethe's Faust (Berman, 1982).

In 1751 Benjamin Franklin uttered these prophetic words:

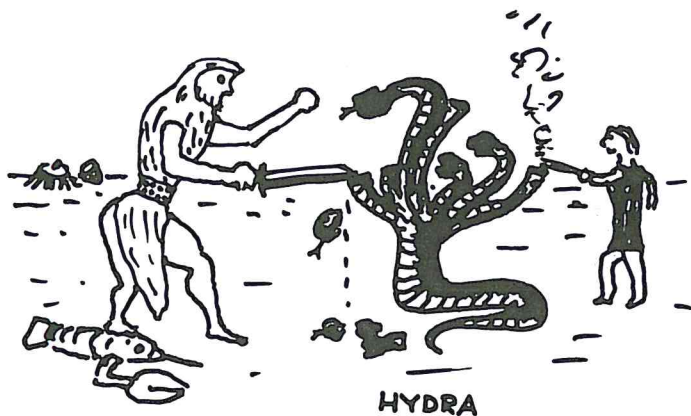
A nation well regulated is like a Polypus: take away a limb, its place is soon supplied, cut it in two, and each deficient part shall speedily grow out of the part remaining. Thus, if you have room and subsistence enough, . . . you may, of one, make ten nations, equally populous and powerful, or rather, increase the nation tenfold in strength.

Was it the societal integration of this metaphor - the identification of particular nations as organic wholes - that really undermined the cognitive power of organicism? In Humboldt's *Cosmos*, nations and regions would be *nexuses* within a larger whole, but in the writings of Ratzel, Kjellén, or Mackinder, it would be the home nation that constituted the organic unity.



A hand-drawn diagram illustrating the evolution of scientific disciplines over time, from 1700 to 1900. The vertical axis represents time, with major ticks at 1700, 1750, 1800, 1850, and 1900. The horizontal axis represents the emergence of various fields. The diagram is divided into several regions by diagonal lines. The leftmost region is labeled 'THROCRATIC' and contains 'VAPENIUS' at the bottom. The next region is 'GEOCRATIC' and 'GEOGRAPHIC', containing 'PATENT', 'SETTLEMENT', 'HUNTINGTON', 'BOWMAN', 'SOCIAL', and 'ECONOMIC'. The central region is 'HUMAN', containing 'HUMBOULT'. The rightmost region is 'PHYSICAL', which is further divided into 'HISTORICAL', 'BIO', 'METEOROLOGICAL', 'ASTRONOMICAL', 'EXPLORATION', 'GEOLOGY', 'CHEMISTRY', 'DAVIS', 'SCOTT', 'PIERCE', 'NANSEN', 'LIVINGSTONE', 'FRANKLIN', and 'NEWTON' at the bottom.

Each of these might initially use a rhetoric of organicist tone, but all would eventually seek new, more analytically-oriented models to guide their actual research (Stoddart, 1966). The emerging scientific mind demanded reductionism, hypothesis testing, tangibly measurable data and procedures for comparative analyses. If one takes each sub-specialty, then, as a polypus, or head of the Hydra, one could say that it was from internal (i.e. academic) sources that the Hercules sprang: a divide and conquer among the practitioners themselves.



Hercules in our drama could thus be identified in all those structures treaties, and laws which have been set up to prevent the re-appearance of Hydra empires or nations: the UN, UNESCO, EEC, COMECON. Functional specialization of scientific effort is still regarded by many as the best buttress against totalitarianism. The Darwinian revolution, notwithstanding some of its organismic rhetoric, pointed more toward a mechanistic set of processes and the systems analysis of parts. I suspect that once its *coherence* was thus ruptured, through its integration into a peculiar set of historical and technical circumstances, organicism temporarily lost its credibility among Western scholars.

From the North American side there was certainly more to the story than that. This was a time when federal monies had far less influence on the directions of research than they did later: the rejection of the organicism had far more to do with emotional, moral and aesthetic preferences and judgements, than it had to do with epistemological argument. In the wake of World War I organicism, environmental determinism, state totalitarianism defended in such terms as race and territory and most of all the idea of "control", "influence", or "relationships between organic and inorganic" became quite distasteful to the geographers of Bowman's *New World*. In a sense, the overthrow of organism might be construed as overthrow of European *Mâîtres Penseurs*, as the rejection of deductive logic, rational models, or anything which could not be tested empirically. The Anglo-American preferences for empiricism on the one hand, coupled with an American penchant for pragmatic problem-solving on the other, eventually undermined the appeal of organicism among American geographers. And the most elegant proclamations over the need of geography to study "man-milieu" relationships (Davis, Huntington, Barrows) bore within them the seeds of alternative metaphors.

For over two generations, the "organism" remained virtually underground through the battle fire of Hydra and Hercules. Yet the lived reality in many parts of the world seems to be calling out for a revival of

organicism, e.g. in the ecological and "milieu" movements within Euro-America and in the liberation movements of previously colonized territories in Africa and Oceania. Kohr's *Breakdown of Nations*, Schumacher's *Small is Beautiful*, Norberg-Schultz' *Genius Loci*, the growing appeal of *Gaia* and Eco-Philosophy, all witness to the quest for organicity and human scale in the conduct of everyday life (Naess, 1981). At the heart of physical science, too, organic conceptions of brain and matter are generating a virtual metamorphosis of science itself (Prigogine and Stengers, 1979). If Western geographers wish to engage in dialogue with colleagues in such emancipatory settings, they might well reconsider their historical prejudices against organicist modes of discourse.

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FROM "MAP" TO "CHIMERA"

It was in Geneva, at the Ninth International Congress of the IGU (International Geographical Union) (1908) that the following motion was adopted:

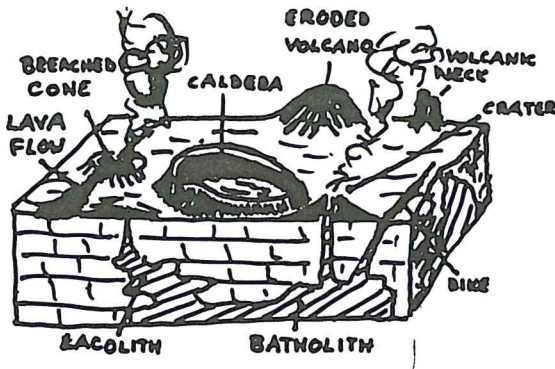
Geography . . . has as its object the description of the surface of the earth, considered in its various elements, physical and living, whose combination and interdependence determine the existing physiognomy of the globe. This teaching in primary and secondary education should be based on the reading of maps and should pursue above all a synthetic method. In the portrayal of the different parts of the globe, geography should make clear the relation between the inorganic world and living things, and more particularly between the surface of the earth and man. (Cited in Dickinson, 1969, pp. 270-71)

Such a masterpiece of mixed metaphors could only have come from the compromise of such strong personalities as were signatories to the resolution. The discipline was henceforth to become an encyclopedic gathering of any and all evidence which could be put on a map. Morphology and chorology were to have a privileged status, and for that a long and respectable intellectual lineage could be claimed. For the theoretically-minded, had not Ptolemy and Strabo already displayed an elegantly deductive (law-seeking) style in representing location, distance, physiognomy and regionalization of the globe? For the empirically minded, was there not Herodotus, and much closer to memory, Kant, whose "summary of nature" (physical geography) was the basis not only for history but also for "all the other possible geographies" (moral, cultural, economic)?

If one searches for a standard text in which this "mapping" view of geography is most elaborately expounded, it would presumably be Hettner's *Die Geographie: ihre Wesen and ihre Methoden* (1927). This was later

reaffirmed in the standard texts of other schools (Hartshorne, 1939; Darby, 1947; de Jong, 1955; Dickinson, 1969). For the most part, however, this was a metaphor which invited practical and empirical work rather than philosophical reflection: it is from its fruits rather than its roots that it can be best evaluated.

The welcome extended to chorology in North America is understandable. Did it not enable practitioners to climb out from under the umbrella of the European masters, to avoid the ecological verbiage and the disconcerting implications of Darwinism? After World War I, the whole question of environmentalism was something that the younger generation wished to abandon. Historians were already moving from *Frontier* to *Section*; sociologists moving from "natural areas" to "social area analysis" and the sociometry of demographic patterns; geology and physiography were obviously headed toward specialization - geography needed an identity of its own. With the study of space and areal associations one could maintain a house of many mansions, and besides, become useful and visible within society at large.



Why was this chorological option so attractive to students in the 1920s in America? Robert S. Platt offers one impression:

In comparison with my philosophy major, geography offered the advantage of dealing with tangible and visible things forming a solid basis on which to build ideas, instead of beginning and ending with abstractions. In comparison with my history minor, geography had the advantage of going more to the field for direct observation instead of going to the library to read about things no longer visible. In comparison with geology, geography had the appeal of dealing with the world of people instead of only rocks and fossils. (Cited in Hartshorne, 1964, p. 632)

In this short statement, I think one could sense at least three features of the American *esprit* of the 1920s and 30s: the appeal of concrete tangible objects of analysis rather than abstractions, the primacy of present over past, and the superior value of human activity and problem-solving over laboratory research (Blouet, 1981). When members of that generation reflect on the origins of American geography, they tend to extol projects such as that of Powell's vain attempt to persuade Congress to re-consider its commitment to a rectangular grid for the new settlers in the West (he used maps to show the case); Johnson's work on the Panama Canal; and even George Perkins' Marsh's warnings about soil erosion which were based on latitudinal surveys of relief, water and vegetation (James, 1981; Marsh, 1864; Powell 1878).

Even with a common denominator as apparently tangible as the map, however, tensions inevitably arose. Should the aim of geography be to present its own special (spatial) perspective on phenomena such as settlements, circulation patterns, land uses or cultural traits? Or should geography try to piece together the *gestalt* (*Zusammenhang*) of particular regions or locales? Hettner and Hartshorne wisely counselled that both perspectives should flourish, because they could complement one another and both could refer to the landscape. A cleavage, however, would develop between those who - with the power of positivist techniques - would eventually seek to model and theorize about spatial pattern and process on the one hand, and those who would seek to articulate the uniqueness and individuality of places and regions on the other hand. A distinct cleavage would also arise between the chorologists at either side of the Rockies. Sauer in California would maintain a sensitivity to history and cultural diversity, he would engage in dialogue with anthropology as his students tramped all over Central America, and eventually sneer at the narrow functionalist pre-occupations of his former colleagues in the Midwest.

What was needed above all for this generation was a method, a patentable technique, as it were, which geographers could display as being especially theirs. No wonder such energy and excitement surrounded those Salisbury seminars in Chicago and the quest for precise and sophisticated ways of representing all that had been gathered in the field.²

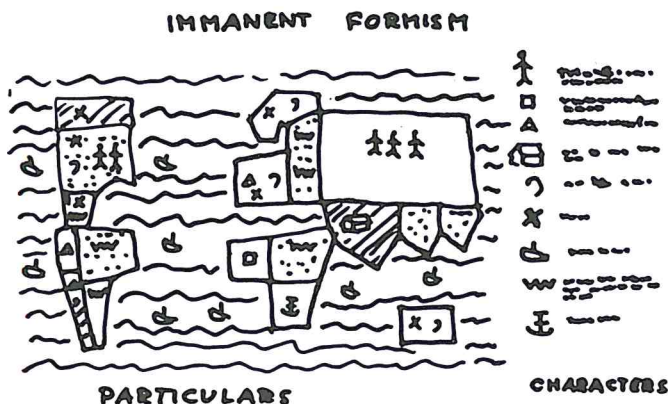
Each tradition has no doubt its own story to tell on the popularity of this "mapping" alternative, and the Chimera of regional descriptions toward which the metaphor led during the interwar period. Might one not claim that indeed it also facilitated an integration of geography within the housekeeping concerns of nations where domestic concerns out-weighed the international ones? In America, at least, what counted during Depression

² Perhaps the most outstanding of all at this time was Sten de Geer's dot-map of population (1919) (de Geer, 1923; Freeman, 1967). This document, coupled with his (1923) essay on "The Definition, Method, and Classification of Geography", was heartily welcomed both in the Midwest and West Coast. See also J.K. Wright's ingenious "Map Makers are Human" (1949).

times was the resource survey, the inventory of problems and prospects which any government needed in order to plan wisely. And the map was ideally suited to that purpose. Such surveys and inventories (not all of domestic concern) opened up a vast arena for empirical and practical creativity in charting the structures of past and present settlement patterns, in opening the debate over administrative and regional boundaries and land uses. They gave geography a voice in the classification, categorization and representation of phenomena which any tidy housekeeper welcomes. Added to this was the conviction which many of this generation held, viz. that one could do all this in a "value-free" way: let policy makers and public evaluate, their job was to *represent*, as accurately as possible, the reality they observed.

Turning now the philosophical side, one can enquire into the theory of truth which characterizes formism, and its root metaphor, "map". In the Pepper system, this theory is known as a *Correspondence Theory of Truth* which traces a lineage from Aristotle and Plato, to the Scholastics and Realists of today. Whether in philosophy, aesthetics, sociology or mathematics, the central challenge of formism is to discriminate similarities and differences, to typify and classify such differences and then to represent (via prose, numbers, art or sound) the forms which have been perceived by the senses. The root metaphor of *form* is, according to Pepper, one of the most enduring in Western intellectual history (Pepper, 1942).

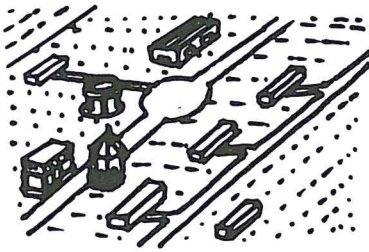
There are two types of formism: immanent and transcendent. The main categories of *immanent formism* are (1) characters, (2) particulars, and (3) participation, or the "tie" between characters and particulars.



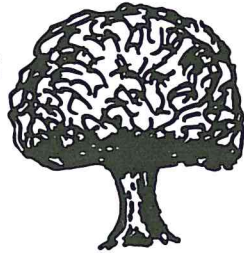
A "class" is a collection of particulars which participate in one or more characters, and classification systems proceed from the more general to the less general. Classes are expressions of the actual working of the three categories in the real world.

Transcendent formism takes a step further - it seeks a *norm*, or model, which could yield explanation of pattern. And here a distinction can be made by reference to classical thought.

TRANSCENDENT FORMISM



PLATONIC - ARTISAN



ARISTOTELIAN -
- NATURAL LAW

Plato explained forms in terms of some underlying artisan's plan - as the soul informs the body, so too some great superhuman artisan had a plan for the world. Aristotle, on the other hand, sought norms which might be intrinsic to nature itself, e.g. the Oak Tree. In each case there would be a norm which would transcend the particular plan (any particular oak tree may be influenced by its milieu and inheritance and few ever achieve the perfect norm). So transcendent formism has three further categories which distinguish it from immanent formism: (1) norms; (2) matter for exemplifying those norms; and (3) principles of exemplification which materialize the norms.

What distinguishes the immanent and transcendent types of formism, thus, could be roughly translated into the distinctions between inductive and deductive types of enquiry in geography. The first might be illustrated in Linnaeus, or the Koeppen Classification of Climates; the second in William Morris Davis' Cycle of Erosion or Christaller's Central Place Theory. Aristotle believed that there were norms in nature itself, and so did Humboldt, but he took that conviction beyond a "map" and envisioned an organicity in the Cosmos. The Pythagoreans searched for elements in matter and twentieth century physicists believed that all of matter can be described in terms of a matrix of atomic elements; Plato suggested that it would take a

Divine Artisan to plan for the disposition and interaction of those elements. At the dawn of geography's disciplinary consciousness, the distinction between Ritter and Humboldt mirrors the distinction between a Platonic and Aristotelian definition of *norms* and transcendent formism.

* * * * *

This contrast in fundamental conceptions of *norm* invites curiosity about the integration of geography within societal planning interests today. Might one not detect Aristotelian elements in the liberal Anglo-American economic policy and Platonic ones in the Welfare State ideals? Could one not speculate over settings which might give place to one or the other view in geography? Does the spirit of inductive, empirical, orienteering thrive in cultural settings where national governments sponsor a liberal view of the intellectual life, and the spirit of deductive, positivist, discourse become more welcome in settings where national governments aspire to the Artisan role?

* * * * *

When World War II broke out, who else would be quite so useful for the intelligence service than this skillful band of geographers? In every war office throughout Europe one found them; the Admiralty Handbooks of the (UK) Naval Intelligence Division offer good illustrations. Wartime service would not only serve to integrate geography very intimately into the national service, it would also return an impressive archive of documents and substantial funding for innovations in cartography, as well as data files on areas and regions throughout the world.



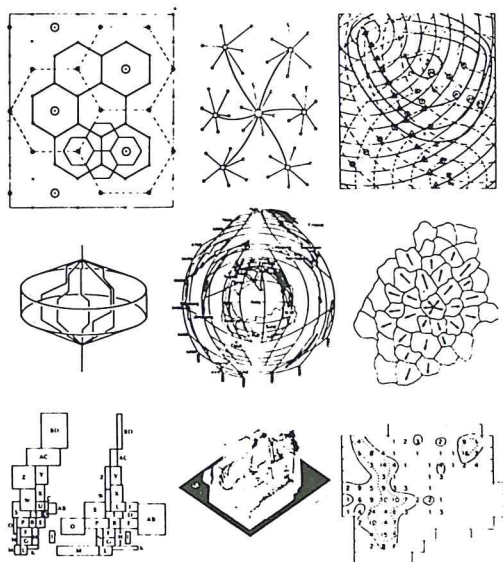
The actual experience of war, however, was to transform that world view which has hitherto dominated geography with its tidy housekeeping methods, its geometrical forms and its slumbering regions. The inductive

style would soon be replaced by the deductive, the nomothetic over the idiographic; processes of spatial interaction would soon outrival the patterns of areal differentiation. Space does not permit any flirtation with that metaphor today - mechanism - although indeed it was to become the vogue, complementing rather than conflicting with the essential goals of the mapping era. But before leaving our Chimera, might it be appropriate to ask who or what rode the winged steed Pegasus?

No doubt a number of internal and external events surrounding World War II might aspire to that role in our drama. Externally speaking, the conquest of the air and aviation technology brought about a radical change in conceptions of space, time and cost-distance between places. Even in the ways the public press described events and challenges changed. An areally-differentiated world was to become a topological surface of points, lines of force, shrinkable or expandable distances. Post war reconstruction plans in virtually all Western European societies kindled again the Faustian dream: via science and technology rationality would guard against future war, rationalization of space and functions would combine efficiency and order. Internally, geography as a discipline would move its focus away from pattern and form, emphasizing instead process and function, or rather would seek to relate the two.

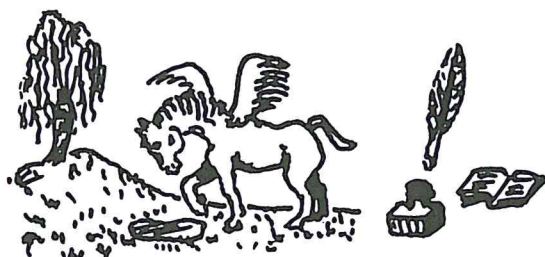
Curiosities about pattern and form, however, would still provide enormous scope for intellectual creativity. Beginning at Iowa in the 1950s and quickly linking to Seattle, Evanston, Chicago and Michigan, the quantitative wave, anchored in positivist method, would give the "map" a revolutionary face lift. Bunge's *Theoretical Geography* re-echoed the grand dream of the Pythagoreans and Ptolemy, Newton and the American War of Independence . . . Chorology could be re-visited, now with quantitative language; geography could be a science again (Bunge, 1960)! Needless to say Sweden was at that time a model toward which many American practitioners aspired: here was a mode of geography which could not only hold a positivist head high, but it could claim relevance to public interests in the rational organization of space, people and activities.

But formism, i.e. the map alone, did not provide an integrated world view other than that of geometry. Whatever explanatory power it has was that which could be derived from those natural regularities like gravity, spacing, centrifugal or centripetal tendencies among moving bodies, the flow of the seasons, currents, tides. But it was the inspiration derived from such "natural laws" that enabled formism to yield such generalizations as Central Place Theory, the Rank Size Rule for cities, the hierarchies of trade areas and the geography of Manufacturing Belts. The metaphor of *form* (or "map") served the heuristic function it had always claimed since Plato and Aristotle: it offered a framework for enquiry into pattern, a model to guide deductive reasoning, a challenge for reflection on the "togetherness" of things within a circumscribed area. What would render this perspective into an integrated one, intellectually speaking, was its marriage with another root metaphor, viz. mechanism. One might argue indeed that it was this marriage that gave birth to what is known in Europe as the "New Geography", the texts of which would still be written with an imperialistic rhetoric but not always by individuals from the allegedly imperial nations!



NORDISKA SÄLLSKAPET FÖR REGIONAL SAMHÄLLSANALYS

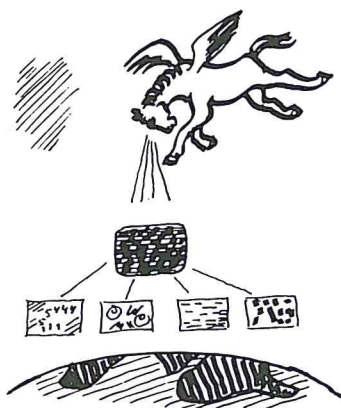
But Pegasus is symbolically linked to literature and poetic inspiration. It was from the hole he dug on Helicon with his heel that Hippocrene, the fountain of the Muses, sprang. A second major movement within geography, a humanist one, helped to reinstate the map.



The virtual groundswell of criticism against the move toward spatial geometry on the one hand, and the obvious integration of New Geography into the managerial interests of governments and administrations on the other, has re-kindled a return to the more inductive approach to landscape. This has taken forms such as historical archeology, mental maps, and a curiosity over "representational space" versus "lived space", the non-

isomorphism between administratively-defined subdivisions of territory and the actual experiences and perceptions of people.

And the map is likely to remain and even to thrive, as a central practice in the field of geography.



The winged steed today brings remote sensing and data assembly on the one hand, and a growing enthusiasm for studies of landscape history on the other. All these point to the survival capacities of this root metaphor.

INTEGRITY VERSUS INTEGRATION: CONCLUDING QUESTIONS

Ambivalence surrounds the term integration, however one may define it. Hydra and Chimera have hopefully dramatized the tale of two major thought currents which have served as common denominator of discourse among geographers during the early years of disciplinary establishment in various Euro-American countries. As each sought to integrate itself into the research and educational interests of particular nations, this tale suggests, sclerosis or metamorphosis loomed on the horizon. Intellectually integrated approaches such as those of mechanism and organicism seem to have served macro imperial programs for controlling societal development, whereas intellectually dispersed approaches, such as formism and contextualism appear to have served the ad hoc, particular, housekeeping and problem-solving needs of society.

The intention, however, has not been to suggest that all geographers have simply responded opportunistically to the challenges offered by national governments. Many indeed are the scholars who sought understanding of life and landscape quite independently of political or cultural circumstances. And whether the fundamental orientation was toward Ivory Tower or applied work, fresh conceptions of reality have often invited thought toward higher levels of integration. Humboldt's *Cosmos*, Vidal's *genre de vie*, D'Arcy Thompson's *On Growth and Form*, Troll's

Landschaftsökologie, Christaller's hexagons, Bertalanffy's *General Systems Theory*, Hägerstrand's paths and projects, and Prigogine's self-organizing systems - all have heralded moments of intellectual liberation, offering horizons of understanding within which a whole variety of diverse curiosities could find a home. Among the ranks of geographers one is just as likely to find a Diogenes as a Prometheus.

Of the three planes on which the integrative process has been examined, priority of importance has been given to the conceptual. On this plane, it might be argued, too, that intellectually integrated conceptions of reality, whenever or wherever they appear, are best articulated by a single individual. Does this mean that cognitive integration is a process which unfolds within the mind of particular persons? Its articulation, exemplification and dissemination may demand team effort, and hence one moves from the conceptual to the social aspects of scholarly practise. *Paterfamilias* modes of research enterprises which deliver impressive monuments of one period, may be subjected to ideological pressure and dismemberment at a subsequent time. Ironic, it seems, the relative pallor of results from high-powered research teams today when compared with the dramatic freshness of personally-led enquiries of former years. Chimera volumes of edited readings can scarcely compete with the integrated treatise authored by a single individual.

On the structural (disciplinary) plane, one confronts the perennial puzzle of communication and the reciprocal relationships between individual integrity and social creativity. The tensions between individual integrity and social belonging no doubt plays itself out in every department of geography as well as in every setting where geographers negotiate their relationships with Academy and Marketplace. A critical issue here may be one of scale. One may, for example, need a certain stability at the institutional level in order for creativity to have a chance at another. How may one articulate creativity as a geographer today, for example, if one does not have an institutional base somewhere? And what point, dare I ask, is there in arguing for institutional recognition if one does not have some integrity of intellectual base? The planes intersect and influence one another. So the challenge for particular departments, or specialties within the discipline, is one of discerning the appropriate scale at which they can function with integrity. Two models of micro-social integration suggest themselves. A co-responsible community model would allow considerable flexibility in negotiating the tensions of individual and collective orientations, but its case rests on very solid ethical and idealist grounds; without high levels of personal commitment and welcome for creativity, the anarchist scale of operation could scarcely work in geography today. The technocratic alternative would seek integration into whatever economies of scale their industries or labour syndicates would find feasible, and make no demands on individual responsibility.

It is thus extremely difficult to separate the structural from the societal planes of integration. Proud indeed is the legacy of geographical associations which stood aloof from national ministries, chauvinism or xenophobia, but in the latter twentieth century, one cannot fail to recognize

the progressive adumbration of geographic practice under the overall societal interests of its time. Historically speaking, however, one could argue that definitions of "integrity" and "integration" have been profoundly influenced by cultural beliefs and preferences; the meaning of these words might be best unmasked by an exploration of myth rather than logic. Was it not the same Faustian (Promethean) myth which fostered belief in imperial expansion (political, commercial or intellectual) at one time, that also sustained visions of economic development and rational planning within national territories later (Berman, 1982)? Geographers seem to have had little difficulty maintaining an integrated field as long as it was fuelled with a particular culture's chauvinism or altruism. At moments when its practitioners witnessed demise in such bases for self-confidence, queries arose about the discipline's identity and its images of the world. Perhaps the biggest challenge for geographers in every tradition today is to call forth whatever creativity they can to elucidate the realities, and educate the young, in a world which can no longer afford a Promethean (or Faustian) myth of progress. And I'm quite sure we can do it, once we recover from our successive inebriations with the "-ologies" and "-isms" which we have allowed to colonize our mindscapes.

REFERENCES

- Barrows, H. (1923) "Geography as human ecology," *Annals of the Association of American Geographers*, 13:1-14.
- Berdoulay, V. (1980) *La métaphore organiciste. Contribution à l'étude du langage métaphorique en géographie*, Oral presentation to the IGU Commission on the History of Geographic Thought, Kyoto.
- Bertalanffy, L. von (1968) *General Systems Theory*, New York: Braziller.
- Berque, A. (1982) *Vivre l'espace au Japon*, Paris: Presse Universitaire de France.
- Berman, M. (1982) *All That Is Solid Melts Into Air*, Berkeley, California: University of California Press.
- Blouet, B. (ed.) (1981) *The Origins of Academic Geography in the United States*, Hamden, Connecticut: Archon Books.
- Bunge, W. (1960) *Theoretical Geography*, Lund Studies in Geography, Series C, No. 1.
- Bunksé, E.V. (1981) "Humboldt and an aesthetic tradition in geography," *The Geographical Review*, 71(2):127-46.
- Buttimer, A. (1982) "Musing on helicon: root metaphors in geography," *Geografiska Annaler*, 64(2):89-96.
- Darby, H.C. (1947) *The Theory and Practice of Geography*, Liverpool: Inaugural Address, University of Liverpool.
- Davis, W.M. (1903) "A scheme of geography," *Geographical Journal*, 22:413-23.

- Davis, W.M. (1906) "An inductive study of the content of geography," *Bulletin of American Geographical Society*, 38:67-84.
- De Geer, S. (1908) "Befolkningens fördelning på Gotland," *Ymer*, 28:240-53.
- De Geer, S. (1923) "On the definition, method, and classification of geography," *Geografiska Annaler*, 5:1-37.
- De Jong, G. (1955) *Het karakter van de geografische totaliteit*, Groningen: J.B. Wolters.
- Dickinson, R.E. (1969) *The Makers of Modern Geography*, New York: Praeger.
- Dryer, C.R. (1920) "Genetic geography: the development of geographic sense and concept," *Annals of the Association of American Geographers*, 10:3-16.
- Freeman, T.W. (1967) *The Geographer's Craft*, Manchester: Manchester University Press.
- Guyot, A. (1856) *The Earth and Man: Lectures on Comparative Physical Geography in its Relation to the History of Mankind*, Transl. by C.C. Felton. London: Richard Bentley.
- Hägerstrand, T. (1952) "The propagation of innovation waves," *Lund Studies in Geography*, Series B, No. 4.
- Hägerstrand, T. (1970) "What about people in regional science?" *Regional Science Association Papers*, 24:7-21.
- Hartshorne, R. (1939) *The Nature of Geography - A Critical Survey of Current Thought in the Light of the Past*, Lancaster, Pennsylvania: Association of American Geographers.
- Hartshorne, R. (1964) "Robert S. Platt, 1891-1964," *Annals of the Association of American Geographers*, 54:630-37.
- Hettner, R. (1927) *Die Geographie: Ihr Geschichte, Ihre Wesen, und Ihre Methoden*, Breslau: F. Hirt.
- Huntington, E. (1927) *The Human Habitat*, (4th ed.) New York: Van Nostrand, Co. Inc.
- James, P.E. (1981) "Geographical ideas in America, 1890-1914," pp. 319-26 in B. Blouet (ed.) *The Origins of Academic Geography in the United States*, Hamden, Connecticut: Archon Books.
- Jefferson, M. (1928) "The civilizing rails," *Economic Geography*, 4:217-31.
- Leighly, J. (1955) "What has happened to physical geography?" *Annals of the Association of American Geographers*, 45:309-18.
- Livingstone, D.N. and Harrison, R. (1981) "Meaning through metaphor: analogy as epistemology," *Annals of the Association of American Geographers*, 71(1):95-107.
- Marsh, G.P. (1864) *Man and Nature, or Physical Geography as Modified by Human Action*, New York: Scribner.
- Naess, A. (1981) *Ekologi, samhälle och livsstil: utkast till en ekosofi*, Stockholm: LT.
- Pepper, S. (1942) *World Hypotheses*, Berkeley, California: University of California Press.
- Powell, J.W. (1878) "A discourse on the philosophy of the North American Indians," *Journal of the American Geographical Society*, 8:251-68.

- Prigogine, I. and I. Stengers (1979) *La nouvelle alliance, Métamorphose de la science*. Paris: Gallimard.
- Ratzel, F. (1882, 1912) *Anthropogeographie*, 2 vols., Stuttgart.
- Ratzel, F. (1897) *Politische Geographie*, (3rd ed.) 1923, München and Berlin: Oldenbourg.
- Russell Smith, J. (1907) "Economic geography and its relation to economic theory and higher education," *Bulletin of the American Geographical Society*, 39(8).
- Sauer, C.O. (1925) "The morphology of landscape," *University of California Publications in Geography*, 2:19-53.
- Semple, E.C. (1911) *Influences of Geographic Environment on the Basis of Ratzel's System of Anthro-geography*, New York: Henry Holt.
- Stoddart, D.R. (1966) "Darwin's impact on geography," *Annals of the Association of American Geographers*, 56:683-98.
- Taylor, G. (ed.) (1951) *Geography in the Twentieth Century*, London and New York: Methuen, The Philosophical Library.
- Thompson, D'Arcy W. (1917) *On Growth and Form*, Cambridge: Cambridge University Press.
- Turner, F.J. (1894) "The significance of the frontier in American history," *Proceedings of the State Historical Society of Wisconsin*, 41:79-112.
- Turner, F.J. (1920) *The Frontier in American History*, New York: Henry Holt and Co.
- von Humboldt, A. (c. 1844) *Cosmos*, 2 vols., New York: Harper and Bros.
- von Humboldt, A. (1849) *Aspects of Nature in Different Lands and Different Climates*, Philadelphia: Lea and Blanchard.
- Warntz, W. (1964) *Geography Now and Then*, New York: American Geographical Society Research Series, No. 25.
- Wright, J.K. (1942) "Map makers are human: comments on the subjective in maps," *Geographical Review*, 32:527-44.
- Wright, J.K. (1952) *Geography in the Making, The American Geographical Society 1851-1951*. New York: American Geographical Society.
- Wright, J.K. (1961) "Daniel Coit Gilman: geographer and historian," *Geographical Review*, 51:381-99.

