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Articles

The Social Origins of Environmental Determinism

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Abstract. Three elements of late nineteenth century society are examined: imperialism as the urgent moment of sociopolitical necessity, Social Darwinism as compelling ideology of an imperial capitalism, and environmental determinism as first version of modern geography. To legitimate imperial conflict and conquest, sociological principles were derived from biology using the methodological linking device of the organismic analogy. Fundamental differences between humans and the rest of nature could not be comprehended within this methodology. Though aimed at a science of society, Social Darwinism in general and environmental determinism as its geographic version were forced to assume a quasi-scientific form in racism, and nature was given a causal power that could not be scientifically justified. Marxism, by comparison, provides a theoretical basis for scientifically comprehending the relations between nature, production, and society. Following Social Darwinism rather than Marxism prevented geography from achieving a science of environmental relations.

Key Words: consciousness, determinism, expansion, ideology, imperialism, legitimation, nature, Marxism, mysticism, religion, science.

ACHIEVING science in the study of society has proven difficult. Knowledge becomes science when it accurately comprehends the structure and dynamic of a part, or aspect, of reality. This level of accuracy was first achieved by natural science; thus Darwin's theory captured the essential dynamic of organic evolution. Social science, however, studies a particularly difficult object, for the human organism is a subject—a being with consciousness, who can never be relied on to respond in an identical way to the same objective situations. This subjectivity extends to the intellectual formulating theories about the human being. Even those intellectuals actively seeking truth rather than notoriety cannot divorce their scientific understanding from the rest of their consciousness. The discovery of theory is a part of the conceptualization of life; science is a part of culture.

By "life" we must mean society and by society, a class-ruled entity. The leading social force, the class owning the means of economically reproducing society, has to exercise control also

over the means of reproducing its hegemonic ideas. It has at its disposal direct means, such as the sponsoring of research and ownership of the communications media, and indirect means, such as the ability to direct the sunshine of social attention. The ruling class has the ultimate responsibility for ensuring that society reproduce itself, and it is in the immediate material interest of even the fiercest critic of the existing social order that the economy function effectively. Thus a wide interest, almost consensus, resides in the making of a general ideology, a structured understanding of the world, in support of the current way of conducting social life. This extends deep into the scientific realm where ideas are generated which simultaneously explain and legitimate the course of social events. Social philosophy is made as legitimation theory.

By legitimation I do not primarily mean the deliberate manufacture of propaganda by a mercenary intelligentsia. Intellectuals need more than thought to live. Like everyone else, they

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must exchange their product—ideas—within the existing division of labor and relations of production. Their economic integration supports a basic sympathy with the existing social order. Immersed in its economy and culture, intellectuals propagate the aims of the encompassing society as their own even as they search for “neutral truth.” Theory protects the material basis of its existence.

The consequences for science are considerable. Society structures the direction theory takes by posing great issues in a certain way. If theory begins to take too critical a stance toward society, sanctions are brought against the offending theorists. The need to be socially and politically functional directs inquiry in directions productive of ideology but not necessarily productive of scientific principles. Scientific understanding may be prevented if it poses a threat to the existing social order.

This paper presents a case study of the diversion of science into legitimation ideology. Environmental determinism was geography’s entry into modern science. Determinism attempted to explain the imperial events of late nineteenth and early twentieth century capitalism in a scientific way. Yet, to gain a prominent position in the mass reproduction of ideas, geography had also to legitimate intersocietal competition and the conquest of some societies by others. The discipline borrowed from evolutionary biology, the leading science of the day, in formulating its main principles, using the device of the organismic analogy. This analogy proved incapable of capturing the essential, differentiating features specific to human society. It therefore skewed geography in a scientifically unproductive direction. Yet it continued to be used because of its legitimation function—that is, allowing imperialism to be legitimated as a necessary stage in the evolution to a higher order of existence. “The survival of the fittest had once been used chiefly to support business competition at home; now it was used to support expansion abroad” (Hofstadter 1955, 202–203). The gaps in this “science” were filled through the retention of (prescientific) religious and mystical ideas, especially in the areas of human consciousness and social purpose. Scientific failure occurred at the moment of its modern emergence. This has had drastic consequences for the subsequent trajectory of the discipline of geography.

This paper examines only certain elements and individuals in this general historical process.

“Society” is simplified into two types of context for the development of modern geography: the particular sociopolitical processes urgently demanding scientific rationalization and the more general scientific ideas both responding to this social process and immediately impinging on geography. In terms of that darling of the intellectual historian—the great individual—the paper focuses on Lamarck and Darwin, originators of evolutionary biology, Spencer as philosopher general of Social Darwinism, and Ratzel and Semple, articulate proponents of Spencerian ideas in geography. Environmental determinism, I argue, was geography’s contribution to Social Darwinist ideology, providing a naturalistic explanation of which societies were fittest in the imperial struggle for world domination.

The Socio-Political Context

Society’s urgent need for explanation stems from its most fundamental activities. Material production and social reproduction must be understood by those whose continued existence depends on these processes. The transformation of nature during production and the overcoming of natural distance during spatial activity are the environmental relations studied by geography. They are also its recognized domain in the production of legitimation theory.

An academic discipline achieves fame if it responds effectively to society’s needs and fortune if it responds to the expression of need by the existing holders of power and influence. In late nineteenth century capitalism, this meant capitalist society’s need for geographic expansion expressed by the ruling class, the industrial bourgeoisie, and those other class elements of state power who supported a vigorous economy and a powerful nation—landed interests and feudal aristocratic remnants on the one hand and a satisfied middle class on the other. The achievement of modernity in geography meant serving these class groups’ expression of the social need for explanation in the imperial era.

In the last three decades of the nineteenth century, capitalism entered a period of crisis marked by economic recessions in 1873–78, 1884, and 1893–96. A change occurred in societal form, from the competition of capitalism’s youth to the monopoly of its mature years

(Sweezy 1968; Baran and Sweezy 1966). Significant change in social form necessarily entailed dramatic changes in the expression of society in space. The spatial structure of capitalism changed toward greater agglomeration at the center and a wider and more closely controlled periphery (Harvey 1975; 1982). Imperialism and colonialism were the necessary external relations of a monopoly capitalism (Lenin 1975).

During the long nineteenth century, the Europeans increased their share of control over world space from 35 percent in 1800 to 85 percent in 1914 (Fieldhouse 1973, 3). The period from 1870 onward saw a particularly severe struggle for the conquest of external space, ending in Euro-American control over almost all non-European societies. This involved the elimination of whole groups of pre-capitalist people (the aborigines of Tasmania), the destruction of ancient civilizations (China), and taking over the destinies of entire colonized continents (Africa). These dramatic events demanded explanation. The need was to legitimate what often had to be inexcusable human actions.

The intensification in European experience of the non-European world occurred in the context of an overwhelming sense of power:

Where superiority feelings had once rested on little more than religious arrogance and ordinary xenophobia, they could now be buttressed by demonstrable superiority in power and knowledge. The result for Western thought was a wave of unquestioning cultural arrogance that rose steadily until well into the twentieth century (Curtin 1972, xv).

A close identity between the locus of power and the regional origins of certain ethnic groups biased explanation in the direction of nationalism, racism, and environmentalism. Simultaneously, the need to protect the dominant form of society led to the mystification of the socio-economic process; social economics were underemphasized in theory by comparison with the biological analysis of inherent human urge. The need to escape from guilt over the destruction of other peoples' lives, a guilt that survived even in a racist view of the world, meant that the motivations for actions had to be located in forces beyond human control—"God," "Nature," or some amalgam of the two. What began as a scientific explanation of the bases and causes of intersocietal competition and conquest ended as its naturalistic justification. The legi-

timization function turned science into mystical ideology.

The Intellectual Context

Modern geography emerged as part of a new, "scientific" understanding of the world, in contrast to previous religious forms of comprehension. This transformation has previously been theorized (Gillespie 1979) in terms of Kuhn's (1970) paradigm shift and Foucault's (1970) change in episteme. I would more simply propose that a new mode of production, involving a new structure of social experience, needed articulating by a new mode of understanding: capitalism was expressed by positivistic science. I would not claim that mode of production and mode of theoretical consciousness matched exactly in identity of content and tempo of change. Whereas some (technical) ideas drive production, more general social forms of theoretical consciousness tend to lag behind—the mass of people comprehend in yesterday's terms. Indeed, it is exactly the differential movements of physics, biology, economics, sociology, and geography in the nineteenth century that forms one theme in this paper.

Nevertheless, there was a specific period when the feudal mystification of the world finally gave way to its positivistic measurement. Positivism had been developing as "logic-in-use" since the beginning of capitalism in seventeenth century Europe. Its rise to methodological hegemony, however, came only with Darwin, when positivistic evolutionism proved more productive than creationism of the most fundamental insights into the origins and evolution of the human being (Gillespie 1979). Wittfogel's (1929) account of the move toward a positive, material understanding is instructive. He argues that the early mechanistic models of the industrial revolution denied free will at the same time that materialism was eliminating God as prime mover of history. Only "nature" remained as a general determinant of events. What Wittfogel calls "geographical materialism" thus became an important philosophical basis for the new bourgeois science. Montesquieu, Herder, Hegel, and even Ritter relied at least in part on environmental differences to explain regional historical development. How-

ever, Wittfogel continues, idealist (religious) elements remained in geographical materialism, particularly in theories promulgated in Germany, where strong feudal elements (class, state, ideology) persisted long into the nineteenth century. Methodological limitations also preserved natural mysticisms of various kinds in the new analysis. The purely material forces of nature assumed the ideological form of a causal, active Nature.

I would add to this an emphasis on the notion that the diversion from science into religion and natural mysticism occurred in the context of the legitimation function of explanation in class society. The bourgeoisie had simultaneously to discover the world and to disguise their exploitation of it. Science donned its mystical guise whenever Consciousness or Purpose entered the stage of history. As this happened frequently during the imperial act, the tendency for mystical deviation was particularly evident in the scientific development of the time. In the next sections I trace the course of this movement from evolutionary biology, the leading discipline of the new positivistic science (and thus the preferred source of both explanation and legitimation), through Social Darwinism, the leading social-explanatory ideology of Victorian capitalism, to geography as it emerged in its new modern garb as environmental determinism.

Evolutionary Biology

The two theories of evolution that accomplished the final transformation from creationism to evolutionary positivism also mark different stages in the (partial) development of a materialist understanding. In Lamarck's (1914 ed.) theory, environmentally induced habits directly caused changes in an organism's shape and organization—the giraffe actively stretched its neck reaching for the upper leaves of trees in semiarid regions. Reproduction between individuals sharing the same acquired characteristic then preserved and accumulated such physiological traits. In addition to these purely material processes of organismic change, Lamarck added the inherent tendency for organic life to become increasingly complex; the human being was the highest achievement of the “power of life” (Barthelemy-Madaule 1982). The two theoretic

cal aspects intersected in the structure of Lamarck's explanation of evolution:

Nature, in producing successively all the species of animals, beginning with the most imperfect or most simple in order to end her work with the most perfect, has gradually made their organization more complex; and with these animals spreading generally throughout all the habitable regions of the globe, each species received from the influence of the circumstances in which it is found the habits now recognized in it and the modifications of its parts that observation shows to us (Burkehardt 1977, 150).

Lamarck actually had a materialist conception, if crude and undeveloped, of the “power of life.” He found it an error to attribute purpose or intention to nature. Yet he also believed that nature was executing the “will of her sublime author” (Burkehardt 1977, 185). His theory retained, in a confused way, the essentially religious idea of an ordered development, the sense of teleological purpose typical of the feudal era.¹

Darwin also retained religious concepts in his ideas of designed law, perfect adaptation, and even the division between primary and secondary causes (i.e., by assuming that unknowable primary causes existed).² But the sense of a preordered development was much more obscure in Darwin. For him, the main scientific question at issue lay not with origins but with processes, not where organic variation came from but how it happened. His evolutionary theory focused on the natural mechanisms by which random variations proved beneficial in a Malthusian struggle for existence:

Owing to this struggle, variations, however slight and from whatever cause proceeding, if they be in any degree profitable to the individuals of a species, in their infinitely complex relations to other organic beings and to their physical conditions of life, will tend to the preservation of such individuals, and will generally be inherited by the offspring. The offspring, also, will thus have a better chance of surviving, for of the many individuals of any species which are periodically born, but a small number can survive. I have called this principle, by which each slight variation, if useful, is preserved, by the term Natural Selection (Darwin n.d., 52).

This struggle could have a number of outcomes, including the extinction of species. From Darwin, therefore, came a sense of existential terror; existence depended on competitive success and natural advantage.³

How was Darwin able to achieve a theory that genetics later proved more scientifically accurate? Do we resort to the great thinker myth?

Or should we argue, if as yet inconclusively, that Lamarck's theory was made in France during the torment of its bourgeois revolution, whereas Darwin's represented the industrial and scientific accomplishments of a mature bourgeois society in mid-nineteenth century England? Darwin could draw on a longer, more developed, and more empirically demonstrated geological and biological tradition than could Lamarck. Perhaps even more important, Darwin (n.d., 13) drew on classical economics developed to understand the capitalist revolution in production; he described struggle for existence, the motive power behind natural selection, as "the doctrine of Malthus, applied to the whole animal and vegetable kingdoms." Darwin's theory resounded with themes made commonplace by the rise to hegemony of the capitalist mode of production with "its international wars, its internecine political struggles and class warfare, its uninhibited economic competitiveness, and its rapid pace of technical and scientific change" (Harris 1968, 105).

Capitalism in its red in tooth and claw competitive stage provided the social model for a new mode of natural understanding. In turn, natural science provided legitimation for conducting social life in this dog-eat-dog way.

Even before Darwin's theory appeared in print, Herbert Spencer was using biological principles as the basis for a new sociological understanding. But as Hofstadter (1955, 4) says, after 1859 "Darwinism established a new approach to nature and gave fresh impetus to the conception of development; it impelled men to try to exploit its findings and methods for the understanding of society through schemes of evolutionary development and organic analogies." Darwin's theory appealed because it was empirical and rational, like the Victorian bourgeois conduct of business. It appealed also, I argue, because it seemed to justify interclass and intracapitalist competition and strife as necessary parts of an intraspecies struggle for existence. As Montagu (1952, 32) concludes, Darwin "unwittingly provided the age with its supreme rationalization—a rationalization, however, with full-blown scientific support."

Herbert Spencer and Social Darwinism

The outstanding philosopher of the re-

application⁴ of biology to social science was Herbert Spencer, father of modern biology and godfather of modern geography (Herbst 1961).⁵ His central methodological device, the analogy between natural and social processes, enabled him to apply the scientific principles of organismic evolution conceived by Lamarck and Darwin to the development of the "social organism." The philosophical objective was to demonstrate scientifically that a set of common principles applied to the entire universe. This science of totality was opposed to religion as a superior kind of (materialist) understanding (Spencer 1864).⁶

For Spencer, all objects could be understood in terms of a purely physical interaction between internal and external forces. Species or society changed "under the combined influences of its intrinsic nature and the environing actions, inorganic and organic" (Spencer 1882, 9). The factors of evolution were (1) original, which was divided into extrinsic (e.g., climate, surface qualities) and intrinsic (physical and intellectual character), and (2) secondary or derived—a set of factors brought into play by social evolution itself, like modifications of the environment, size and density of the social aggregate, and intersocietal reactions. Spencer's science of interactions systematized the earlier speculative work of the geographical materialists on the effects of environment on human society. For example, the much discussed effects of climate were specified as degrees of solar radiation, "source of those forces by which life . . . is carried on . . . source of the forces displayed in human life, and consequently in social life" (Spencer 1882, 21).

Spencer's particular theoretical contribution lay in his distinction between organic evolution, the growth, maturity, and decay of an individual organism in response to external interactions, and superorganic evolution, "all those processes and products which imply the co-ordinated actions of many individuals—co-ordinated actions which achieve results exceeding in extent and complexity those achievable by individual actions" (Spencer 1882, 4). This second, higher order of evolution, characterized particularly by cooperation and the division of labor, was found among social animals, but achieved an extent, importance, and degree of complication in human society that made all earlier accomplishments relatively insignificant.

Nevertheless, after recognizing this funda-

mental difference between organic and superorganic evolution and even after adding that humans retain a physical and mental independence from the whole,⁷ Spencer proceeded to derive the principles of the superorganic and sociological by analogy with the organic and biological.⁸ He pointed out that both underwent continuous growth, necessarily exhibiting an increase in structure (specialization and differentiation) as they evolved. Increase in the size of a society was thus accompanied by an increase in heterogeneity and by the growth of social organs—for production (the industrial system), external defense (government-military), and exchange (the distributing system). This development, like organic evolution in Darwin's theory, was driven by the pressure of people on environment. Rich environments enabled size, density, and heterogeneity to be more easily achieved and thus civilization attained.

I shall focus here on the environmental aspects of Spencer's argument. The functional parts of the social organism arose for the same reason and in the same order as the parts of any other organism. All organisms lived by appropriating matter from the earth. The *industrial system* thus played the same part in social sustentation as the alimentary canal in the living body, common laws of localization covering both:

What is the law of evolution in the digestive system of an animal as most generally stated? That the entire alimentary canal becomes adapted in structure and function to the matters, animal or vegetal, brought in contact with its interior, and, further, that its several parts acquire fitnesses for dealing with these matters at successive stages of their preparation: that is, the foreign substances serving for sustentation, on which its interior operates, determine the general and special characteristics of that interior. And what, stated in terms similarly general, is the law of evolution in the industrial system of a society? That as a whole it takes on activities and correlative structures, determined by the minerals, animals, and vegetals, with which its working population are in contact; and that industrial specialization in parts of its population, are determined by differences, organic or inorganic, in the local products those parts have to deal with (Spencer 1882, 523).

Vegetable organisms bore a contrast between under- and above-ground parts caused originally by relations with environing agents, whereas in animals differentiation occurred in the organs of the alimentary system. Spencer continued:

In the social organism localization of the various

industries which jointly sustain the whole is determined in an analogous manner. Primarily, the relations to different parts of the organic and inorganic environments, usually not alike over the whole area the society covers, initiate differences in the occupations carried on. And, secondarily, the nearness to districts which have had their industries fixed, fixes the positions of other industries which especially require their products. . . . Where not drawn by natural advantages in the way of water-power, manufactures in general cluster in or around regions where abundance of coal makes steam power cheap. And if two materials are needed, the localization is determined by them jointly (Spencer 1882, 518–19, 520; cf. Weber 1929).

The organs of animals and the production regions of societies had similar internal spatial structures, were connected by similar circulating systems, and so on.

The *regulating system* (nervo-motor in animals, government-military in societies) was developed by antagonistic relations (across space) with surrounding entities. Just as organs of sensation and coordination developed from the competitive struggle for survival between individual organisms, the regulating system of a political aggregate evolved through wars between social organisms. This process was hindered in the case of the social organism by a lack of cooperation within dispersed groups occupying barren territories and was enhanced by natural fertility and population density. Environmental richness thus conditioned the militant power of certain social organisms in the struggle for existence. I shall call this Spencer's "intensity theory."

Societies in Spencer's system were arranged in hierarchical order by their degree of integration (e.g., simple, compound) and level of heterogeneity. They were classified according to the system that was dominant—the industrial or the militant. Each society was modified by conditioning factors, including the local habitat and the intersocietal environment. Social metamorphoses resulted from variations in the relative strengths of the two main organ systems in response to environmental change. As the social organism approached completeness, however, its modifiability atrophied and slow decay began. Older societies disappeared or were amalgamated as they became unable to compete with younger, more dynamic, more aggressive societies. The survival of the fittest eventually yielded a highly developed society in which a powerful industrial system was used not for militant aggression, but for the "higher activities."

This utopia would be characterized by an inversion of the belief that life is for work, into the belief that work is for life (Spencer 1882, 596).⁹

Spencer's theory thus scientized and elaborated ancient beliefs about the influence of nature on society using Darwinian and especially Lamarckian principles of evolutionary biology. This borrowing from biology enabled a sophisticated science of environmental relations to emerge. Yet the enabling analogy, between organic and superorganic evolution, was fraught with problems and the subsequent discussion was hopelessly biased in a naturalistic direction. Spencer (1882, 614) may have claimed that the organismic analogy was merely theoretical scaffolding to allow the construction of a coherent body of sociological inductions. When the scaffolding was removed, he claimed, the inductions would stand by themselves, parts of universal laws common to all existence and theorizable via a deductive science. But rather than mere scaffolding, biological principles provided the *foundation* for Spencer's science of society. The problems inherent in biological understanding—the lack of distinction between human and other organismic processes of evolution—were built into the particular, disciplinary theories that Social Darwinism helped to generate. This was especially evident in the new German science of anthropogeography.

Anthropogeography

The influence of evolutionary biology on the development of modern geographic thought is now widely accepted. Stoddart (1966) argues that Darwin's biology played the crucial role of establishing the human's place in nature, making possible the very development of geography as a science. The organismic analogy overcame the methodological problem inherent in the study of human-environment relations, the dualism between natural and human phenomena (Stoddart 1967, 159). For Campbell and Livingstone (1983) the selective revival of Lamarckian doctrines (neo-Lamarckism) had a particularly strong influence on the deterministic mold of early-modern Anglo-American geographic thought. Livingstone (1984, 17) perceptively adds that neo-Lamarckism enabled the religious concepts of holistic design and teleological purpose to be retained, easing the "transition from

Providential design to natural law as the source of social legitimation."

The Contextual Issue

A recognition of these linkages is long overdue in a discipline that previously understood its history largely in terms of an isolated process of self-development (e.g., Hartshorne 1939). We still, however, lack a broader contextual awareness (cf. Kearns 1984). In examining the effect of Darwin's thought on U.S. geography, Stoddart (1981) deals only with currents of influence among great men, ignoring the social terrain that chose individuals for greatness and channeled the intellectual connections between them. Campbell and Livingstone (1983, 270) find it important to appreciate the reasons for the popularity of neo-Lamarckism in the late nineteenth century but restrict themselves to a purely intellectual comparison of Darwin's and Lamarck's theories. To the extent that they recognize pragmatic social applications, Campbell and Livingstone see "Social Lamarckism" mainly as intellectual stimulus to movements for improving the condition of humanity. They fail to explore the further class question, improvement for whom?

The geopolitical process of inter-imperial struggle and societal conquest that reached its climax in World War I provided several important themes suited to geographic analysis—the environmental origins of the superiority of certain civilizations, the resource and locational bases of imperial power, the spatial history of imperialist expansion. Thus Hudson (1977, 12) cogently argues that the rise of modern geography more or less simultaneously in Western Europe, the U.S., and Japan was largely to "serve the interests of imperialism in its various aspects including territorial acquisition, economic exploitation, militarism, and the practice of class and race domination." Murphy (1948) similarly argues that France's defeat in the war with Prussia and a need to reestablish the nation as a world imperial power were the motivating factors behind the sudden popularity of French geography in the 1870s. Such studies help explain the *topics* of intense geographic concern, the urgent moments demanding explanation. In terms of *approach* to such topics, Harvey (1981, 9) argues that the spatial relations of imperial capitalism were explained in terms of a theory "which severed all direct connection

with the day-to-day realities of the circulation of capital and its contradictions, and substituted an organicist theory of the state (caught in a struggle for survival, needing *Lebensraum*, etc.) and associated doctrines of manifest destiny, white man's burden, racist superiority, and the like." Likewise Kearns (1984, 26) argues that evolutionary thought provided intellectual credibility to the public debate over what were essentially spatial questions in the theories of leading intellectuals like Turner and Mackinder. Additionally, I would argue that a social (as opposed to a socio-biological) theory might have raised critical issues about the systemic *need* for intersocietal conflict, the social division of the benefits derived from control over other societies, the social costs of imperial conflict, and so on. Social Darwinism and Social Lamarckism may have had liberal proponents, but the dominant versions of both accepted imperialism as a natural stage in society's evolution, necessary for the achievement of (European) civilization in the world. The biological roots of geography enabled it to serve as a highly significant component of legitimation theory in the naturalism fashionable in the post-Darwin period, when science rather than religion legitimated social actions. Fulfilling this ideological function together with providing associated practical skills (like exploration, inventory, mapping, and boundary drawing) made geography a modern, mass reproduced, science.

Ratzel's Role

With training in zoology, geology, and comparative anatomy gained in the Darwin/Spencer years of the 1860s, Ratzel was ideally positioned to establish geography on a modern "scientific" basis.¹⁰ His biographer Wanklyn (1961, 7, 19) says that although not prepared to "swallow Darwin's or Spencer's opinions whole," Ratzel was "convinced of the importance of the idea of evolution, and much of his thinking and writing about the application of the idea of organic evolution to human society derived from this absorption of contemporary science." This borrowing from biology is not seriously contested. More contentious is the political aspect of Ratzel's work. Dickenson (1969, 64, 71), who calls Ratzel "the greatest single contributor to the development of geography of man," also claims that his "term *Lebensraum*, in spite of its dis-

tortion by the Nazis, is one of the most original and fruitful of all concepts of modern geography." Outside the discipline, several authors have commented more critically on the fruits of Ratzel's theoretical originality. Mattern (1942, 62) says that the influence of Ratzel's contributions was of "a welcome and bolstering rationalization of the expansionist history of the world powers . . . and . . . of Germany's impending venture in the same direction." Commenting on World War I, Strausz-Hupé (1942, 32–33) says that Ratzel's theories "contributed to the list of German war aims the one which was to stand out the more clearly as the others faded: '*Lebensraum*.'" A full evaluation of Ratzel's controversial contribution to geographical science is made difficult by the strange absence of a competent and complete study in English of this major figure (despite Hunter 1983). We can, however, evaluate Ratzel's ideas by considering his views on the state, which have been extensively discussed in the English speaking world.¹¹

Geopolitics

Immediately apparent is the profound influence of the organismic analogy on Ratzel's anthropogeographical thought. Ratzel conceived the state as an earth-bound living organism subject to the laws that governed the evolution of all organisms. Thus a body of people lived on a piece of territory and drew their sustenance from it. Each social body was in a condition of perpetual inner motion that caused liquid mass movements across space in the quest for *lebensraum* (living space). People were also tied by spiritual bonds to each other and to the land. What Ratzel called the "space motive" (*raum motiv*), a tendency toward enlargement that depended on the natural-mystical cohesion between state and soil, was the mighty cause of historical development. "Geographical, and still more, political expansion have all the distinctive characteristics of a body in motion which expands and contracts alternatively in regression and progression" (Dorpalen 1942, 69). States could only grow with, and through, the attainment of *Kultur*, a characteristic based in population growth and density (cf. Spencer) and reserved by him to the Europeans (China being the only exception). The growth of powerful states occurred through the amalgamation of

small states into larger ones, the frontier serving as the peripheral organ of the state and the direction of expansion tending toward physically valuable regions. Primitive states received the impetus for growth from influences emanating from greater states already possessing *Kultur*. Hence a tendency for organismic growth was transmitted from state to state, the appetite for space growing with each transmission.

Wittfogel (1929) argues that Ratzel's prime mistake was to put state and soil in direct relation without developing the economic mediations that tie the two together. Ratzel's language, elsewhere clear and rational, assumes a mystical tone where the state is concerned. Dorpalen (1942, 50) argues that Ratzel was aware of the shortcomings of the organismic analogy; like Spencer he was forced to admit that human individuals retain their independence from the sociopolitical whole. But the German Ratzel reacted to this discrepancy differently from the materialist English philosopher, who simply ignored its implications. With Ratzel, the state became a "spiritual and moral organism" subject to mystical analysis rather than a physical being subject to scientific-materialist analysis.¹² Ratzel evaded this inconsistency in his scientific system, Dorpalen contends, because his theory provided a useful justification for the political demands of the day:

Politische Geographie was conceived in the 1880s and 1890s, at a time when German imperialism began to blossom out into its most active phase. Ratzel's state concept endowed these demands for expansion with the authority of seemingly objective science. According to the doctrine of the state as a living being, German's clamor for colonies and world power was but the result of a natural biological development—it was a symptom of growth, as every young and strong being experiences it, and therefore fully justified. Biogeography, in other words, offered a perfect alibi for the Reich's political ambitions (Dorpalen 1942, 50–51; see also, Strausz-Hupé 1942, 31).

Anthropogeography, the "study of organic man, the organic state and an organic world" (Gyorgy 1944, 149) assumed a quasi-scientific, or even pseudoscientific form. Ratzel's new "science" needed little perversion by his student Kjellen and by the son of his friend Haushofer to supply important "scientific" and mystical elements for Hitler's *Mein Kampf* (1943, esp. chs. I-11 and II-2, 4).¹³ It is important that geographers know about this repressed period of their science's

childhood, which has left its mark on the present character of the discipline.

The problems with the organismic analogy encountered first in Spencer matured in Ratzel, and came to fruition in the work of that deservedly most famous environmental determinist, Ellen Churchill Semple.

Semple's Environmental Determinism

A student of Ratzel's in the 1890s (Bronson 1973), Semple is widely interpreted as having introduced Ratzelian ideas into the mainstream of U.S. geography.¹⁴ She dominated the environmentalist period of the discipline in the early twentieth century (Hartshorne 1939, 23, 122) and "trained a large proportion of those who became leaders of the profession during the period between the two world wars" (James, Bladen, and Karan 1983, 29). Her major theoretical work, *Influences of Geographic Environment* (1911), had a widespread, long-lasting use in geographic education (Wright 1966). We can safely say that she had a significant effect on the trajectory of geographic thought in the U.S., but unlike many of her admirers, we cannot assume that her influence was solely due to personal brilliance. Rather, I would contend, she was in touch with some convincing ideas, and her theories served significant sociopolitical interests.

Methodological Intent

In the methodological introduction to *Influences*, Semple tried to distance herself from Social Darwinism by announcing her intention of eliminating the Spencerian basis of Ratzel's anthropogeography:

The organic theory of society and state permeates the *Anthropogeographie*, because Ratzel formulated his principles at a time when Herbert Spencer exercised a wide influence upon European thought. This theory, now generally abandoned by sociologists, had to be eliminated from any restatement of Ratzel's system. Though it was applied in the original often in great detail, it stood there nevertheless rather as a scaffolding around the finished edifice; and the stability of the structure after this scaffolding is removed shows how extraneous to the whole it was. The theory performed, however, a great service in impressing Ratzel's mind with the life-giving connection between land and people (Semple 1911, vi–vii).

She thus cleverly turned Spencer's scaffolding metaphor against his influence on Ratzel. Yet she continued by defining geography as the "scientific investigation of the physical conditions of historical events" (Semple 1911, 10)—exactly that "life-giving connection between land and people" that Spencer had so profoundly influenced!¹⁵ Her practice, as distinct from her purpose, could only be to *modify* Spencer's influence on anthropogeography. For this she drew on the most advanced social philosophy of the late nineteenth century, particularly that current in her native U.S.

Evolutionary Naturalism

A well-defined set of ideas, which Fine (1979) calls "evolutionary naturalism" and Persons (1958) "the naturalistic mind," remained the leading paradigm of late nineteenth and early twentieth century U.S. social science. This school thought it had achieved the level of positivistic science. It was committed to an objectively true knowledge of the totality of natural and social phenomena. Of the set of objective natural laws that operated throughout this totality, the law of evolutionary change was fundamental. But as Persons (1958, 276) points out, "the naturalistic mind with its biological presuppositions devoted much attention to racial problems and assigned an important place in its general social theory to presumed racial characteristics." Social evolution was conceptualized as a series of stages, with environmentally based racial characteristics determining which stage a society reached.

Social evolution was a process by which a multiplicity of human groups developed along lines which moved in general toward the social and cultural forms of Western Europe. Along the way different groups had diverged and regressed, stood still, or even died out, as they coped with various environmental situations within the limits of their peculiar racial capacities, which their different environmental histories had in fact created (Stocking 1968, 119).

In the neo-Lamarckian "scientific racism" of the period, physical characteristics such as pigmentation or hair texture were de-emphasized in favor of mental qualities as factors that differentiated racial groups from a common human stock. Neo-Lamarckians believed that cultural phenomena were carried in the blood, as instincts or temperamental proclivities. The ten-

dency was to extend Lamarck's theory of the acquisition and inheritance of physical character to psychocultural abilities and characteristics (Stocking 1968, 119). The level of culture acquired by one generation of a race then influenced the thinking power of the next. So racial superiority accumulated. Whereas Lamarckism came under attack from Weismann's theory of "germ plasm" in the 1890s and the new thinking that resulted from the rediscovery of Mendelian genetics in the early 1900s, the neo-Lamarckian view that acquired (mental) characteristics could be hereditarily transmitted was not abandoned by many North American social scientists until well into the twentieth century. It remains in popular explanations of supposed national superiority and inferiority and parent/child similarities.

The "psychic approach" of neo-Lamarckism was developed in part as an alternative to Spencer's sociobiology.¹⁶ Nevertheless it retained his confusion between the biological and the sociocultural realms. Toward the end of the century an attempt at separating the two began with the early development of pragmatist sociology in the work of Ward (1893, 1898), Ross (1905), and others.¹⁷ Neo-Lamarckism similarly included the notion that knowledge was accumulated via purely sociocultural transmission mechanisms, like language. This line of thinking eventually would lead to nonbiological emphases on social interaction in sociology and to the culture concept in anthropology. Semple, however, came along at an early stage, remaining predominantly within the racial-biological version of neo-Lamarckism.

Semple therefore drew on the most advanced, conventional social science of her day for her restatement of Ratzel. But this was only a neo-Lamarckism itself profoundly influenced by Spencer. Spencer was Lamarck's most prestigious defender in the late nineteenth century (Stocking 1968, 240). Spencer (1883) himself had examined the environmental basis of human psychological differences. Therefore it was virtually impossible for Semple to accomplish her methodological task within the realm of socially acceptable science. Stoddart (1966, 694) is correct when he concludes, with reference to Spencerian ideas in Semple, that "her writings are permeated by such thinking." However, Stoddart does not inquire further into why sociobiological ideas remained powerful or why Semple persisted in transmitting Spencerian ideas

into the mainstream of geography despite her contrary personal intention. Such questions must be answered in the terms of sociopolitical context and the need for legitimation. For this, I have to specify the character of U.S. capitalism in the last decade of the nineteenth century and the first of the twentieth, when Semple did her seminal work.

United States Imperialism

In the case of the imperial United States, expansion for most of the nineteenth century was confined to the claimed national territory on the North American continent. The last third of the century saw this claim realized at a remarkable rate; "Americans settled more land during the 30 years after 1870 than they had during the entire 300 years before" (Lafeber 1963, 12). However, the territory happened to be already occupied by American Indian and Spanish-American societies. The rapid, bloody conquest of these societies and their habitats made the need for legitimation acute. This often took a crude, pragmatic popular form, as when Theodore Roosevelt spoke of the impossibility of avoiding conflict with the "weaker race" of "squalid savages" (American Indians) whose occasional use of the prairies and forests did not constitute ownership (in Sanford 1974, 89). However, more sophisticated kinds of theoretical justification were also needed. The religious legitimation ideology of the earlier part of the century, "manifest destiny"—the convenient idea that expansion had been prearranged in heaven over an area not clearly defined (Merk 1963, 24)—no longer sufficed for an age of bourgeois science. Ideology had to be updated to include natural "scientific" ideas about social evolution and geographic expansion. As Weinberg (1935, 2) puts it, expansion was legitimated by "metaphysical dogmas of a providential mission and quasi-scientific 'laws' of national development, conceptions of national right and ideals of social duty, legal rationalizations and appeals to 'the higher law,' aims of extending freedom and designs of extending benevolent absolutism."

The closing of the domestic frontier in the 1890s was accompanied by a sudden surge of U.S. interest in extracontinental territory in the Pacific Basin, the Caribbean, and Central America (Merk 1963, 231). At the same time the focus

of economic interest shifted from land, the crucial concern of an agricultural capitalism, to the markets and raw materials important to the industrial capitalism of the late nineteenth century. Although this did not eliminate the taking of colonial possessions (Hawaii, the Philippines, Guam, Puerto Rico), it gave a predominantly commercial (mercantilist) cast to the U.S. version of external imperialism. As one contemporary observer (Albert Beveridge) put it, using a typical melange of economic and mystical analysis, "American factories are making more than the American people can use; American soil is producing more than they can consume. Fate has written our policy for us; the trade of the world must and shall be ours" (Merk 1963, 232). Political opinion changed with lightning speed to match this economic reality, from democratic disdain for colonialism and imperialism in the 1870s and 1880s, to the mass popularity of such imperial concepts as the "white man's burden" in the 1890s (Weinberg 1935, 252–323; Weston 1972).

The main intellectual spokesmen for the new U.S. imperialism were Frederick Jackson Turner, Josiah Strong, Brooks Adams, and Alfred Thayer Mahon; "the writings of these men typified and in some instances directly influenced the thought of American policymakers who created the new empire" (Lafeber 1963, 63). Semple was a (minor) member of this group of intellectuals speaking "not only for themselves but for the guiding forces of their society" (Lafeber 1963, 62). Her contribution to legitimation theory was made at two levels. At a general level she formulated the (Lamarckian) connections among environment, race, and society, explaining thereby the natural basis of national superiority and expansion. At a more immediate level, she exemplified these principles in the case of U.S. expansion in the nineteenth century and "scientifically" evaluated the prospects for its continuation in the twentieth. Let us more closely examine these two contributions.

Influences of Geographic Environment

Semple's anthropogeography was conceived as a theoretical contribution to evolutionary science as a whole. The early pages of her restatement of Ratzel's principles resounded with the

phrases and categories of this approach: humans could not be *scientifically* studied in isolation from the land; the study of physical environment had to use modern *scientific* methods; complex geographic factors could not be analyzed except from the standpoint of *evolution*; Nature was the hidden factor in the *equation* of human development (Semple 1911, 2, 11, 12). Her essential scientific position was as follows:

In every problem of history there are two main factors, variously stated as heredity and environment, man and his geographic conditions, the internal forces of race and the external forces of habitat. Now the geographic element in the long history of human development has been operating strongly and operating persistently. Herein lies its importance. It is a stable force. It never sleeps. This natural environment, this physical basis of history, is for all intents and purposes immutable in comparison with the other factor in the problem—shifting, plastic, progressive, retrogressive man (Semple 1911, 2).

As a modern scientist, Semple attempted a more complete and careful categorization of the influences of environment, drawing reliable data from the long sweep and wide extent of human history. Her academic purpose was to vindicate geography's place in the emerging division of labor as the science of the natural conditions of historical events. This study had been brought into disrepute by prior extravagant, nonscientific generalization, by a failure to recognize the multiplicity and interactive complexity of the geographic influences on history. Semple attempted a more sophisticated theory. Geographic factors worked in a direct way to alter racial characteristics and in an indirect way, through social and political activities, to shape the destinies of peoples. The characteristics acquired from geographic environments (space and shape as well as the qualities of local nature) were selectively preserved and accumulated during various evolutionary developments, such as migration.

One theme constantly renewed in Semple's discourse is the influence of the earth on the movement and placing of groups of people. Migration resulted from a Malthusian "natural increase of population beyond local subsistence" and a Spencerian "development of the war spirit in the effort to secure more abundant subsistence" (Semple 1911, 226). On the one hand, migration subjected different racial groups to the influences of different environments (Lamarck). On the other, it acted as a process

of selection, sparing only the highly fit and creating energetic races (Darwin). The dominant peoples (the English, French, Russians, and Chinese) assimilated the weaker and came to occupy broad territories. Here the geographer's explanatory function was to trace each race (e.g., the "Aryan") through the environments it had occupied, back to its cradle of origin. A people was the product of the country it inhabited and those occupied by its forebears that had "left their mark on the present race in the form of inherited aptitudes and traditional customs acquired in those remote ancestral habitats" (Semple 1911, 25). Hers was therefore an environmentalist contribution to the neo-Lamarckism of her time, maintaining an emphasis on (racial) "inherited aptitudes" but beginning to emphasize (cultural) "traditional customs" as a transmission mechanism in the accumulation of human characteristics.

Semple retained Spencer's intensity theory almost intact in her second theme, the relations among environment, society, and state. Geographic conditions influenced social and economic development through the quality of the available natural resources, human productivity, and the natural possibilities for industry and commerce. These factors were important especially in determining the size of a social group which, when limited by spatially restricted or resource-poor regions, was limited also in political significance.

How was society constituted in Semple's discourse? The anthropogeographer, she said, recognized the various social, economic, and psychological forces that sociologists saw as the cement of society but had something more fundamental to add. For Semple it was natural that the early philosophy of history should have fixed its attention on the geographic basis of historical events. "Searching for the permanent and common in the outwardly mutable, it found always at the bottom of changing events the same solid earth. Biology has had the same experience. The history of the life forms of the world leads always back to the land on which that life arose, spread, and struggled for existence" (Semple 1911, 68). The difference between humans and animals, however, was that the human's relations to environment were so "infinitely more numerous and complex" that they required special study: "anthropo-geography studies existence in various regions of terrestrial space" (Semple 1911, 1, 10). The land was the under-

lying material bond holding a society together and determining its fundamental activities. Common territory exercised an integrating force—weak like that of a low animal organism in the early stages of social evolution and stronger as civilization progressed with its more complex environmental relations, higher population densities, more differentiated uses of the soil, and more varied external relations. The broader and richer the territorial base, the more complex the connections between society and environment and among the various elements of society. Thus it was the increasing density of population in rich resource regions that necessitated the state to reduce internal friction and to secure the land base against external enemies (Semple 1911, 65–66). States that lacked the energy and sense of national purpose for protection were forced by Malthusian pressures into social deformities, whereas those that expanded could use the entire world to feed their people. Like Spencer, Semple managed to find this expansion in the eventual interest of all.

While at home the nation is becoming more closely knit together through the common bond of the fatherland, in the world at large humanity is evolving a brotherhood of man by the union of each with all through the common growing bond of the earth. Hence we cannot avoid the question: Are we in process of evolving a social idea vaster than that underlying nationality? (Semple 1911, 68)

For a theory of progress, therefore, the land offered a solid basis. And because civilization involved the increased exploitation of natural advantage and closer relations between land and people, it was erroneous that humans emancipated themselves from the control of nature as they developed. On the contrary, while diminishing the force of each particular dependence on nature, man multiplied their sum total: “As his bonds become more numerous, they become also more elastic” (Semple 1911, 70; cf. Ripley 1899, 10–13).

In all of this, Semple remained within a naturalistic framework, refusing to recognize fundamental differences between human and other evolutionary processes. Also implicit in her discourse was the natural mysticism already encountered in Ratzel’s geopolitical theory. In addition to “stimulating,” “furthering,” and “developing” human qualities, Nature also “conspired” and “lured” people into certain kinds of action. As she said in her most quoted passage:

Man is a product of the earth’s surface. This means not merely that he is a child of the earth, dust of her dust; but that the earth has mothered him, fed him, set him tasks, directed his thoughts, confronted him with difficulties that have strengthened his body and sharpened his wits, given him his problems of navigation or irrigation, and at the same time whispered hints for their solution. She has entered into his bone and tissue, into his mind and soul (Semple 1911, 1).

Human consciousness mirrors and human action follows the intent of Nature? This was what Semple constantly suggested, with phrases like “directed his thoughts,” “sharpened his wits,” “entered . . . his mind and soul,” “gave him his problems.” Poetic license, however, enabled her only to suggest what would otherwise be immediately dismissed as nonscientific. She thus managed to blend evolutionary science with natural mysticism into a theory legitimating the inexcusable in history. The dominance of some peoples over others was attributed to a supra-human force—the will of Nature as expressed in varying environmental capacities, racial abilities, and mentalities.

Elsewhere, she attempted, in her third and fourth themes, more directly “scientific” analyses of the exact effects of environment on human physique and consciousness. Semple understood geographic influences to act on the human in a similar (Lamarckian) way to their action on all beings: “Certain geographic conditions, more conspicuously those of climate, apply certain stimuli to which man, like the lower animals, responds by an adaptation of his organism to his environment” (Semple 1911, 22). As a good neo-Lamarckian she found psychological effects more varied and important than physical effects. In a general way, psychological effects were interpreted as the permanent, or long-lasting, mental characteristics of races—what she usually called differences in peoples’ “point of temperament.” Her methodological statement in *Influences* quickly passed over this relation, dismissing the direct psychological effect of environment as a matter of conjecture. In practice, however, throughout her empirical discourse, a belief in the different “mental energies” and “temperaments” of racial and ethnic groups played an extremely important role. As she said at one point:

The influence of climate upon race temperament, both as a direct and indirect effect, cannot be doubted. . . . In general a close correspondence obtains between climate and temperament. The

northern peoples of Europe are energetic, provident, serious, thoughtful rather than emotional, cautious rather than impulsive. The southerners of the subtropical Mediterranean basin are easy-going, improvident except under pressing necessity, gay, emotional, imaginative, all qualities which among the negroes of the equatorial belt degenerate into grave racial faults (Semple 1911, 620).

Like Ratzel, Semple believed that humans were born in the tropics, but grew up in the temperate zone, where nature subjected them to compulsion. Those races that remained in the tropics, with few exceptions, suffered arrested development ("his nursery kept him a child"), an effect she at least extended to Europeans going to live in hot, wet lands.

Beyond nature-derived "racial temperament," psychic effects included reflections of environment in "man's religion and his literature, in his modes of thought and figures of speech"—that is in the specific contents of culture (Semple 1911, 40). For Semple, there was a direct relation between environment and culture; thus the mythology of the Polynesians was termed an "echo" of the encompassing ocean, the Eskimo's hell was a place of intense cold, the Jew's a place of eternal fire. A more sophisticated, mediated, version of the origins of mythology came later in her *Geography of the Mediterranean Region* (1933). Primitive religions, she argued, represented the first efforts of untutored man to explain the external world. They were mythologies expressing the natural conditions in a people's homeland. Gods were conceived as representatives of the forces of nature, geography furnishing the clay out of which the deities were modeled. Groups of religions with common characteristics grew in well-defined natural regions, such as the Mediterranean basin where the frequent threat of drought, the powerlessness of the people to understand in meteorological terms, and their resultant helplessness before the overwhelming force of nature, conspired to unite rain and religion in the ancient mind. The chief gods under the climatic conditions of the Mediterranean region thus became weather gods with the power to bestow or deny life-giving water from the sky (Semple 1933, 495–511).

Humans were passive subjects to such direct environmental influence at early stages in development. As they became more active, the indirect influences that "mold his mind and character through the medium of his economic and social life" became more important. But as we

have seen, social life had so little autonomy that its intermediation hardly interrupted the direct influence of nature, and the lack of a distinct social dynamic allowed history to be interpreted in naturalistic terms. This flaw in Semple's reasoning stemmed from the continued influence of the organismic analogy. As the limitations of the analogy showed through, natural mysticism was poetically added in compensation. It was necessary that this be the case. The function of her geographical theory of history was to legitimate as naturally predestined the spatial expansion of the dominant imperial powers. This legitimation was especially important for Semple as expansionary leadership passed to a new world power—an active, aggressive, youthful United States.

Geographic Conditions of American History

American History (1903) examined the influence of natural environment on the course of U.S. history. The "scientific" categories of the argument were the original racial and cultural characteristics of the Europeans, especially the Anglo Saxons, and the transformative power of North American geographic conditions. Europe was a highly articulated continent of confined, protected regions, where population density and the intensity of socioeconomic life enabled the early development of a sense of statehood. The European immigrants to the U.S. thus brought with them "their best capital in the elements of European civilization. As exponents of this civilization they represented the forces of heredity" (Semple 1903, 337). A further interaction then took place between race and the special characteristics of North American place; "geographic conditions, in the cumulative effects of their direct and indirect operation, became factors so strong that just for the sturdy energy of the Anglo Saxon race they became determinants. A less vigorous people would hardly have responded to the educative influences of this peculiar environment" (Semple 1903, 226; but see also Semple 1901). Differences of geographical condition rapidly differentiated the colonists from the parent stock; Semple believed there was a direct connection among North American climate, soil, economy, and political and social ideas. In particular, close contact with nature at

the frontier made the American people youthful, while English society was remade in a more purely democratic form:

The common remoteness and the conditions of wilderness life laid their equalizing touch upon all. Equality of opportunity and resource, identity of tasks and of dangers, and the simplicity imposed upon all precluded classes, and in the mass developed vigor, enterprise, and independence (Semple 1903, 81–82; cf. Turner 1962).

The most distinctive feature of American anthropogeographic conditions, the abundance of free land, thus had a stimulative effect, fostering the spirit of democracy and youth in the entire nation. Yet the same conditions had acted differently on the American Indian (despite the “immutability of Nature”!). The size and remoteness of the continent, the want of a propitious geographic environment had kept the Indian in savagery or the lowest stages of barbarism. With a scant population and a weak tenure of the land, they meant only slight hindrance to the advance of the Anglo-Americans. Furthermore, to the south the Latin races had a limited capacity for leadership, and in the particular case of Mexico, the ethnic Spanish had been weakened by absorption into the native population. Semple conceived all this to be the basis of an exact science of expansion. Describing the constant process of rounding out the frontier (at the expense of the original inhabitants), she was merely investigating a “more scientific boundary.” To the west, the Pacific was the only “absolute boundary”; to the south the Gila River “represented an advance from an unscientific to a scientific frontier” (Semple 1903, 235–36).

The only dangerous competitor in the struggle for North American space, Great Britain, was distracted elsewhere, its Canadian base too peripheral and the northern climate too severe to allow the dense population necessary for geopolitical strength. Nothing, therefore, could prevent the realization of the (Nature-derived) “manifest destiny” of the American people to occupy the continent from ocean to ocean (Semple 1903, 224). The next question for the masters of the struggle for space became how to use their acquired power in the future. The country leaned to the south. The Caribbean Islands would fall to the nearest political domain; “this is what we may call the politico-geographical law of gravity” (Semple 1903, 403). Semple expected the great magnet of Nature eventually

to draw the island fragments to the mainland power and looked forward to the day when its geographic location in the “American Mediterranean” would be exploited by the U.S. to the full limit of its possibility.

The same kind of geopolitics applied to the Pacific Rim, which, however, would be exploited from the basis of positions already established on the Atlantic. Semple (1903, 421) enunciated the scientific-geographic principle that “those countries which have a foothold on both these oceans possess the vantage ground; and their potential strength will be in proportion to the length and proximity of their two ocean frontages and the resourcefulness of their respective hinterlands.” She evaluated the geographical and racial disadvantages of the competing powers—China dominated by a nomadic people, too isolated, and not vitalized by the Atlantic; Japan lacking in area and population; England too remote; Canada, though Anglo-Saxon in blood, too northerly. She pointed to the geographic advantages of U.S. possessions in the Philippines and Samoa. “Political gravitation” drew the Hawaiian Islands to the dominion of the U.S., while a chain of historical events “largely geographical in their causes determined that the Philippines should be the channel of American influence in the East” (Semple 1903, 430, 433). Her book ended on a note of nationalistic fervor, praising the qualities of nature in North America and the environmentally derived racial qualities of the American branch of the Anglo Saxons, in eager anticipation of the U.S. achieving geopolitical preeminence in the Pacific, “ocean of the future.”

Semple’s writings had an immediate appeal for the leading social forces of her time; as Colby (1933, 233) says, *American History* was “widely read and discussed.” She explained national superiority in the new terms of natural “science,” specifically by providing an environmental version of “scientific racism.” She provided a new version of manifest destiny by attributing U.S. expansion to natural predestination: “The leadership in the American continents assumed by the United States in the enunciation of the Monroe Doctrine has its final basis in geographical conditions” (Semple 1903, 237).¹⁸ She excused the bloody actions involved in expansion as the spread of a higher order of civilization and the establishment of a “scientific frontier.” She masked the class nature of U.S. capitalism beneath a veneer of frontier demo-

cratism. If Turner and Mahon had not already said much of this, Semple would have been *the* rather than *an* ideologue of the early U.S. imperial period. As it was, she turned American geography firmly in an environmentalist/evolutionary direction. But before I investigate this, I should pause to criticize more effectively the entire intellectual and political position adopted by Spencer, Ratzel, Semple, and environmental determinist geography in the early twentieth century.

A Marxist Critique

Capitalism and imperialism were the objects of a second analysis, the historical materialism of Marx, Engels, and Lenin. Apart from certain aspects of Febvre's (1925) critique of environmental determinism,¹⁹ geography was isolated from this alternative, even though a fairly complete version was available in Wittfogel's (1929) brilliant exposition.²⁰ Geography therefore has had a continuing tendency to underemphasize or misunderstand the society that intercedes between nature and human. Yet the effect of nature on humans is always mediated through society: natural effects vary with the level and form of social organization. In addition, the natural context is shaped by social activity: humans are increasingly conditioned by what they collectively and historically have made of nature—i.e., by a “second nature.” An explanation of the relations between the natural world and human life thus requires “an elaborated social theory or at least some basic assumptions about the historical process of social development” (Dunford and Perrons 1983, 66). In historical materialism this theory is provided by Marx's concept of social productive activity. Social labor provides the missing link between external nature and the internal qualities of human beings.

Marx's theory of the relations between social production and environment has been extensively discussed elsewhere (Prenant 1943; Schmidt 1971; Timpanero 1975; Parsons 1977; Burgess 1978; Walker 1979; A. Sayer 1979; Smith and O'Keefe 1980; Quaini 1982; London Group 1983; Smith 1984). For the present purpose a comparison of Marx's historical materialism with the natural organismic approach is more relevant. This will provide an opportunity

to criticize Social Darwinism and environmental determinism in the only acceptable way— from the established position of an alternative perspective.

Historical Generalization

Social Darwinism was a whole way of understanding the world. It aimed at the discovery of a set of universal principles equally applicable to the natural and human-social worlds. The history of humanity that emerged was cast in terms of eternal organismic evolution. Its generalizations made it intellectually appealing to a bourgeois mind impressed by natural science, while the same quality gave it important legitimation functions. Yet once the sociobiological spell was broken by the course of sociopolitical and scientific events, the sweeping nature of its generalizations made environmental determinism suddenly unconvincing, while geography, in reaction, moved in the direction of an even more unscientific ideographic idiosyncrasy in the 1930s and 1940s.

In historical materialism, by comparison, a distinction is drawn between the transhistorical and historical levels of theory and analytical category (D. Sayer 1979; Gibson and Horvath 1984). All historical epochs have certain common characteristics. When “sifted out by comparison,” these can be separated from “elements which are not general and common,” so that the essential differences remain when the two are combined in general statements (Marx 1973, 85). For Marx, transhistorical similarity comes from the relations that all human individuals must enter: a relation to nature, particularly as appropriation or property, which provides the material basis of existence; and a relation with others, as in the social relations of production, which ensures the continuation and enables the improvement of material existence. But the relation with nature is always mediated by the individual's membership of a *definite social group* occupying a certain territory. Thus the appropriation of nature takes place within and through a specific *historical form* of society. This leads Marx (1973, 471–514) to an analysis of the social forms of human history and the different property relations or ways of appropriating nature that characterize these (Peet 1981). Generalizations about environmental relations are made within this specifically historical methodology—

as part of a social, rather than a natural, science of history.

The Structure of Society

In the making of sociobiological analysis the analogy between organism and social organism played the crucial role. Analogical comparisons between the theorized and the largely untheorized can enable leaps in understanding; but such leaps may be in the wrong directions, especially in sociopolitical circumstances that favor certain kinds of analogy as the bases of legitimation theories. More generally, however, analogy is a crude methodological device, incapable of yielding an analysis of essential differences among groups of phenomena. In the present case the organismic analogy proved incapable of yielding a scientific analysis of human consciousness, which in the case of Semple becomes merely a localized, received version of the will of Nature. Furthermore, the analogy reduced social structure to a set of biological functions and made location a matter of purely natural determination. The deficiencies of this crude, naturalistic, structural-functional "sociology" initiated by Spencer became especially obvious when the dynamic of the social organism was "explained." It just naturally grew if it could under the prevailing competitive conditions. Furthermore, regional differences in historical development could be accounted for only by racial variations in abilities implanted directly by natural environmental factors. Hence as the nineteenth century closed, what had begun as geographical materialism was forced into geographical idealism, natural mysticism, and the pseudoscience of race. Furthermore, in the twentieth century, even the evolutionary-scientific aspects of Ratzel and Semple's work were lost, frequent lapses occurring into gross, simplistic racism, with statements being made that have certainly not added to geography's scientific stature:

Wherever Negroes are in a majority [in Latin America] they remain for the most part backward. They are apt to be childish, inactive, and indifferent to progress. Living in the tropical lands of Latin America, where Nature is generous in providing for their simple needs, they have little stimulus to effort even though slavery has gone. They form an element which is difficult to assimilate into an economy based on European ways of life (Fleure et al. n.d., 194).

This kind of statement, taken from a textbook edited by prominent British geographers and aimed at schoolchildren, results not from the perversion of its individual author but from adherence to a form of analysis that emphasized the natural qualities of the human being. As the study of the natural effects of regional environments, racism was the geographic version of such a theory. Regionally oriented naturalists were forced into racism as the basis for social explanation.

Historical materialism also aspires to science. Unlike Spencerism, however, it begins with the specifically *human* version of the relation to nature as appropriation and transformation through conscious labor. Marx discusses this relation in his most general (transhistorical) statement about the human labor process:

Labour is, first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature. He confronts the materials of nature as a force of nature. He sets in motion the natural forces which belong to his own body, his arms, legs, head and hands, in order to appropriate the materials of nature in a form adapted to his own needs. Through this movement he acts upon external nature and changes it, and in this way he simultaneously changes his own nature. He develops the potentialities slumbering within nature, and subjects the play of its forces to his own sovereign power (Marx 1976, 283).

Human consciousness, for Marx, is a natural potentiality developed through the social labor process and structured by the characteristics of that process. Conscious purpose then guides further interactions with nature:

A spider conducts operations which resemble those of the weaver, and a bee would put many a human architect to shame by the construction of its honey comb cells. But what distinguishes the worst architect from the best of bees is that the architect builds the cell in his mind before he constructs it in wax [i.e., in model form]. At the end of every labour process, a result emerges which had already been conceived by the worker at the beginning, hence already existed ideally. Man not only effects a change of form in the materials of nature; he also realizes his own purpose in those materials (Marx 1976, 284).

For Marx there is a fundamental difference between human and other natural activities captured by the (modified) phrase "humans make themselves." Humans become collectively able to control the conditions of their existence so that they are no longer under direct determina-

tion by natural forces. This changes the direction of the appropriate analysis from external nature to internal social characteristics—that is, to the way human collectives (societies) are organized and controlled. For Marx the level of the development of the productive forces and the relations of production determine the overall structure of society. Consciousness is accumulated from socially conditioned historical experiences, albeit in different natural settings. Geographic expansion results not from natural urge or natural increase in numbers but from the social contradictions of particular, historical modes of production.

This last theme runs through the social philosophy of the nineteenth century as an unpopular undercurrent. It can be found in Hegel, von Thünen, and Marx (Harvey 1981). Under the imperialist conditions of the late nineteenth and early twentieth centuries, several versions were developed in the radical literature. Drawing on critical liberal thought, Lenin (1975 ed.) emphasized a superabundance of capital forcing the acquisition of colonies in an intercapitalist national struggle for control over the world which culminated in World War I. Luxemburg (1951) stressed the need for external markets and hence a tendency for capitalism to capture and dissolve the noncapitalist societies of the world. Other Marxian writers emphasized societal needs for additional resources and labor by the dominant imperial powers (Brewer 1980). The common theme of these theories is the social rather than natural need for imperial expansion. Hence the appropriate analysis is social and economic rather than biological. Social purpose is the product of class decision making for definite class ends, rather than the will of Nature manifested in different racial proclivities and abilities.

Consciousness

Taking up the most difficult dimension of social science, Marxism argues that mode of production rather than natural environment directly is the primary origin of consciousness. Recognizing this makes it possible to contemplate the discovery of social scientific laws of the development of thought. When human existence was dominated by an immediate reliance on nature (at a low level of development of the productive forces), consciousness was similarly

dominated by nature. Marx (1976, 173) specifies the form of domination as the deification of natural forces. In the “ancient social organisms of production” the real (natural) limitations placed on human action were reflected in the “ancient worship of nature.” As human productive force increased, the possibility arose for a scientific understanding of nature. But consciousness is determined also by the social relations of production. Relations of class dominance require even natural theory to be socially legitimating—hence Darwin’s early emphasis on competition in nature. The potential liberation of consciousness from religious and mystical oppression was therefore only partly realized (Peet 1985). Most natural scientists retained religious and mystical theories in uneasy alliance with their science. Social understanding in particular was necessarily mystified.

Historical materialism does not deny the biological basis of the human being (Timpanero 1975) or the process of natural evolution; indeed Marx wished to dedicate *Capital* to Darwin. Instead it proposes the addition of a specifically *social* dimension to natural analysis; consciously directed social labor marked a new era in evolutionary history. Material reproduction forms the basis of society. The dialectics of social struggle are its dynamic. Dialectical materialism thus aspires to a social science of human existence and development.

Trajectory of a Discipline

A disciplinary interest in human-environment relations predates Ratzel and Semple (Hartshorne 1939, 35–101), as does the use of organismic analogies in geography (Stoddart 1967, 514–18). However, the definition of geography as the science of human-environment relations, with the use of organismic analogy to illuminate this relation scientifically, belongs to the late nineteenth and early twentieth centuries. This approach did not result exclusively or even primarily from the internal dynamic of geography’s development but from the discoveries of evolutionary biology and from the urgent need for a theory legitimating capitalist social relations, intersocietal strife, and geopolitical expansion in an age of imperialism.

An entirely different mode of theoretical consciousness dealing with the origins and devel-

opment of human life grew with capitalism, shattering the old models of the earth and its inhabitants that had been appropriate for earlier social forms. Even crude versions of the new bourgeois science were sufficient to overcome the old in disciplines like sociology and geography, which were dominated by scientific evolutionary naturalism during the second half of the nineteenth century. But rather than Darwin's formulation, it was Spencer's organismic analogy and Lamarck's conception of the direct acquisition of characteristics from the environment that played the main parts in informing an environmental determinist geography. Ratzel's anthropogeography was a spatial version of the theory of the social organism. Semple's environmental determinism, the leading paradigm of late nineteenth and early twentieth century Anglo-American geography, drew its intellectual inspiration from the current of biological, and especially Social Darwinist, thought that swept the conventional social sciences in the post-Darwin decades.

Adherence to this paradigm did not result solely from its power of scientific persuasion. The era of biology's intellectual hegemony was also the era of imperial expansion and mounting intersocietal conflict. From a Marxist position, these developments can be scientifically understood in terms of the inherent contradictions of a particular, historical, society—the need to conquer others comes from the need to maintain and expand a class-based society. From the Social Darwinist position, by comparison, expansion and competition were seen as natural characteristics of all organisms, as necessary moments in the evolution to a higher level of civilization. (Here we find a vestige of the earlier religious conception of nature. By examining nature one could divine evidence not only of the long-term effects of purely material forces, but also gain the best indication of God's will—what was natural was also moral.) Far from yielding a critical theory of imperialism, the predominant use of naturalistic thought was to legitimate the expansionary power of the fittest. Geography's role in the making of this ideology was to explain fitness in the new “scientific” terms of environmental causation—hence the disciplinary focus on geographic determinants of society and history.

The problems inherent in this Social Darwinist “science” stem from its failure to realize the profound differences between human beings and

the rest of nature. These lie in the intricate social nature and productive power of the human labor process and the development of consciousness that allows this process to be self-directed. In the case of humans, therefore, natural determination is countered by social determination. Natural theory has to be amended to include a specifically human social science. The organismic analogy proved inherently incapable of providing the basis for such a theory, yet the analogy persisted because it proved a convenient methodological tool in legitimization theory. This inherent incapacity led sociobiological “science” in the direction of natural mysticism: the underlying motor of history became the active force of a conscious Nature. Lacking an adequate theory of the social origins of human consciousness and purpose, the Social Darwinists were forced to maintain a belief in suprahuman Consciousness to explain the dynamic of history.

Cultural Geography

Environmental determinism became increasingly socially dysfunctional in the 1920s after the main issues of imperialist domination of the world had been settled by World War I.²¹ At the same time it was subjected to an academic, theoretical critique. I shall follow here one part of this critique, in U.S. cultural geography. Barrows (1923, 2; Koelsch 1969) initiated a mild criticism from within the environmentalist school by arguing that the relations between humans and environment should be seen from the standpoint of human adjustment as this was “more likely to result in the recognition and proper valuation of all the factors involved, and especially to minimize the danger of assigning to the environmental factors a determinative influence which they do not exert.” Sauer (1963, 320) followed with the far more telling argument that a transposition of divine law into omnipotent natural law had caused the “eager adherents of the faith of causation” to sacrifice their earlier concerns in the name of a “rigorous dogma of naturalistic cosmology, most notably in American physiography and anthropogeography.” As he later added, “natural law does not apply to social groups” (Sauer 1963, 359). Instead what humans did in an area involved the active agency of culture in the shaping of the landscape (Sauer 1963, 343). Nature merely pro-

vided the materials that set the limits within which lay many possible choices. Adaptation might be aided by the “suggestions which man has derived from nature, perhaps by an imitative process, largely subconscious” (Sauer 1963, 343). But it was also the product of acquired or invented habits, learned skills that diffused through space. Eventually the human became the “ecologic dominant,” a force that “affected the course of organic evolution” (Sauer 1956, 49).

Sauer’s critique played the main internal role in finishing environmental determinism as the hegemonic theory of geography and initiated redefinition as a “social science, concerned with . . . areal differentiation” (Sauer 1924, 17). The question, however, is whether Sauer provided an adequate alternative theoretical base for geography. Cosgrove has criticized Sauer for not providing a concrete theory for the emergence and nature of culture; both de la Blache and Sauer, he claims, regarded culture as a “species of pure human inventiveness” (Cosgrove 1983, 3). Thus Sauer (1969, 2–3): “Man alone ate of the fruit of the Tree of Knowledge and thereby began to acquire and transmit learning, or ‘culture’. . . . Occasionally, a new idea arose in some group and became a skill and institution.” I would agree with Cosgrove that a nonmystical theory of consciousness proved difficult for cultural geography to achieve. As a result, cultural geography was incapable of establishing a secure philosophical basis for the comprehension of the human use of the earth and has shown a continual tendency to degenerate into parochial eclecticism.²²

Regional Geography and Spatial Geometry

Loosed from the disciplining effect of a clear social function, with environmental determinism critiqued but not effectively replaced, geography drifted during the 1930s, 1940s, and 1950s through a regionalist version of what often remained a hidden determinist agenda. The continued influence of “classical geography” was revealed, for instance, in the layout of geography textbooks that “begin with such things as solid geology and climate and progress through vegetation and soils to settlement, agriculture, industry and transport—a perfectly logical sequence of exposition in ‘classical terms,’ but less so if the ‘classical’ view is abandoned”

(Wrigley 1965, 7). Geography lost its position as a primary legitimation theory as the urgent needs of capitalist society shifted from imperial conquest to the internal social problems released by the lack of an external, continually opening safety valve. As Harvey (1974b, 21) puts it, the modern corporate state’s concern with the management of economic growth and the containment of discontent was answered in the post World War II period by a geography that increasingly focused on urban, regional, and environmental management. In the late 1950s and 1960s the emphasis of the discipline switched dramatically to the geometry of space as the theoretical foundation for the new social function. This, however, can also be seen in part as an internal reaction against the failure of environmental determinism in theory and eventually in practice. Yet, with its dismissive assumption of the homogenous plain, spatial geometry created a new dualism within the concept of environment, between nature and space. The analogy with physics, which underlay spatial analysis, proved equally inapplicable because the interacting “atoms” have consciousness and behave somewhat unpredictably, whereas space is socially re-created rather than absolute. The new “science” of spatial relations had lost geography’s original concern with the ever-varying qualities of the earth’s surface and with the origins of human behavior. Furthermore, because the discipline failed to find a theoretical key to unlock the secrets of its most profound (environmental) question, it had lapsed into an embarrassed silence just as the relation between society and nature came into a state of contradiction and crisis during the late 1960s and the 1970s. What should have been geography’s finest hour was, instead, the moment of its most dismal failure—the discipline played a minor role in the environmental debate of the 1970s.

A Social Science of Environmental Relations

But theoretical consciousness follows a complicated path. Dead ends can be transformed into new beginnings or new versions of paths neglected in the original stampede to emulate biology. What distinguishes humans from animals? The level of consciousness that enables humans to understand, control, even destroy nature. What distinguishes the peculiarly human independence of nature? The forces and intri-

cately social relations of production interposed between individuals and the natural world. And finally, how are these two kinds of human distinctiveness connected? In acting on the earth during the production of their lives, humans not only transform external nature but also find and develop their own inner nature. The experience of nature becomes internal consciousness during the social reproduction of human existence. Elucidating this process would make possible a science of human-environment relations capable of accurately guiding political practice.

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Notes

1. The idea of acquired ("learned") characteristics was found particularly applicable to the process of human cultural evolution as the nearest biological analogy—what is learned in one generation is inherited by the next via teaching and writing (Gould 1983, 70–71). The idea of direct acquisition of character from the environment also had a strong appeal to geographers. And finally the concepts of design and purpose embedded in Lamarckism made it an apposite source of social legitimation (Livingstone 1984).
2. Even the partial abandonment of religion occasioned great difficulty and much anxiety. On Darwin's personal struggle to abandon the religious idea of the harmony of nature between reading Malthus in 1838 and changing his thinking in the mid 1850s, see Ospovat (1981).
3. This lesson was not lost on the Social Darwinists. T. H. Huxley (in Kropotkin n.d., 332) thus describes life among primitive humans as "a continual free fight . . . the Hobbesian war of each against all was the normal state of existence." Even the achievement of civilization has hardly modified "the deep-seated organic impulses which impel the natural man to follow his non-moral course."
4. *Re-application* because Darwin used Malthus's principle of human population growth as the dynamic behind the struggle for existence and natural selection. Note also that Malthus was an important ideologue of the unrestricted development of competitive capitalism (Harvey 1974a).
5. Spencer's main ideological function, the right-wing-anarchist "attempt to strengthen laissez faire with the imperatives of biology" has been so thoroughly discussed by Hofstadter (1955, 40–41) that it will be assumed in what follows, allowing a focus on the environment-society relation in Spencer's thought. For a survey of the works of other writers in the Spencerian vein see Harris (1968, ch. 5). On the history of the organismic analogy see Coker (1910).
6. However, even Spencer, on the radical, anti-religious, materialist edge of bourgeois scientism, was not able to transcend that ultimate mysticism, the attribution of origin to an unknowable force. Hence in *First Principles* (1864b), which attempted no less than a synthesis of biosocial evolution with the physics of the conservation of energy, Spencer was forced to appeal to the mysterious principle of the "persistence of force," by which he implied "the persistence of some cause which transcends our knowledge and conception."
7. In *Principles of Psychology* (1883) Spencer divided psychology into an objective type, which dealt with the relations between the nervo-muscular apparatus and environment, and a subjective type, dealing with sensations, ideas, etc., which were the direct and indirect concomitants of this visible adjustment of inner to outer relations. Notice that the organismic analogy is ruptured at the point of "indirect adjustment," that Spencer was forced to concede that consciousness was a subject matter radically distinct from biology, and that he therefore found subjective psychology to be a separate study.
8. Spencer, however, drew important political conclusions from the individual consciousness of the human units of society. As there was no "social sensorium," the welfare of the social aggregate was not an end to be sought. Rather the society exists for the benefit of its individual members, not its members for the benefit of society. Hence a right-wing anarchism.
9. Or, as elsewhere (Spencer 1864), evolution could only end in the establishment of the greatest perfection and the most complete happiness.
10. Ratzel was a member of a group of scientists led by Haeckel producing a flood of lectures, articles, and books that made Darwinism extremely influential as a popular philosophy in a rapidly industrializing Germany (Kell 1981).
11. Ratzel's more general anthropogeographic ideas are examined via Semple's reinterpretation in the following section of the paper. But see also Ratzel (1896).
12. Ratzel's argument lapses into mysticism at exactly the points crucial to the legitimation of German nationalism and expansionism: the "spiritual" bond between society and a part of nature and the "cohesion between state and soil" as the power behind spatial growth. See also the discussion of Ratzel's "panpsychic philosophy" in Hunter (1983).
13. It would be a mistake to attribute organicist and

racist excess solely to one deviant (German) school of geography. As late as 1931, the influential British geographer Mackinder could still find a publisher for his declaration that "in the English Plain we have a typical natural region. . . . Within this natural region we have the English blood, one fluid, the same down the centuries, on loan for the moment in the 40 million bodies of the present generation. John Bull in his insularity is the exemplar of the myriad separate bloods and saps, each the fluid essence of a local variety of species of animal and plant" (Mackinder 1931, 326).

14. Semple was merely the most effective of a group of environmental determinists prominent in U.S. geography at the turn of the century. The other prominent determinist, William Morris Davis, found that "a relation between an element of inorganic control and one of organic response" stated in terms of "causal or explanatory relationship" was the "most definite, if not the only, unifying principle that I can find in geography" (Davis 1954, 8).
15. Furthermore, Semple investigated this relation with a methodology and even analytic categories remarkably similar to Spencer's—hence her internal forces of race and external forces of habitat and Spencer's intrinsic and extrinsic factors, Semple's indirect effects of environment and Spencer's secondary factors of superorganic evolution, and so on. The similarities were obviously due not only to Ratzel's absorption of Social Darwinist ideas (and hence their transmission to Semple) but also to the direct influence of Semple's education in sociology, economics, and history (Bronson 1973) in a U.S. social science permeated by Spencerian thought (Hofstadter 1955; Bannister 1979). However, see also Hunter (1983, ch. 5) who argues that it was Semple rather than Ratzel who was influenced by Spencer.
16. Thus Ward (1893, 243) argued that the existing (Spencerian) social science erred in "practically ignoring the existence of a rational faculty in man, which, while it does not render his actions any less subject to natural laws, so enormously complicates them that they can no longer be brought within the simple formulas that suffice in the calculus of mere animal motives." With this it can be seen that the contradictions inherent in Spencer's dichotomy between objective and subjective psychology (Note 7) were beginning to mature.
17. The branch of sociology in which the biological analogy was maintained the longest, the Chicago School (Mathews 1977), has had the greatest effect on (urban) geography.
18. As Smith (1984, 11) points out, Nature came to be not just God's text but God himself in the "Christianized naturalism" of the nineteenth century. The ideology of manifest destiny, he says, was based on this philosophical foundation. It seems to me, however, that as the century progressed, God was pushed farther back into original cause, whereas Nature for writers like Semple became the increasingly effective cause. In Semple, I have suggested, we may even read the idea of a "conscious Nature." As the language used to describe this is always (necessarily) poetic, one cannot divine the exact mix of divinity and naturalism. One does, however, find in Semple the belief that Nature knows better than humans. Thus in a laudatory account of Japanese imperialism, in which its colonial methods are described as "animated by an intelligent and beneficent spirit to protect Japan's new subjects and to develop the resources of the newly acquired lands," we also read that "Japan's policy makes no allowance for certain natural forces which see further into the future of national development than the most intelligent Governments" (Semple 1913, 255). Note also that based on a word count analysis, Hawley (1968) argues that nature increasingly assumed an active role in Semple's writings after 1911.
19. Febvre (1925, 236–37, 367) argued that the fashioning of humankind by natural conditions should be treated as humans making themselves through labor. Or more generally, the human being was "endowed with an activity of its own capable of creating and producing new effects, in which case there is an end of determination in the true sense of the word," i.e., "there are no necessities, but everywhere possibilities."
20. In Wittfogel's (1929) important reformulation of Marx, the objective structure of nature determines the direction taken by productive activity by providing natural materials and, more importantly, natural forces of production. Because different social organisms find different means in their environments, their modes of production are different—i.e., environmental variations were an origin of multilinear social development. This eventually led Wittfogel (1957) to his quasi-Marxist conception of "oriental despotism" founded, like Marx's Asiatic mode of production, on the environmentally conditioned need for irrigation and thus the early development of the despotic state in hydraulic social organizations.
21. An environmentalist geopolitics remained powerful, however, both in society and the discipline of geography, where imperialist and expansionary movements had been most frustrated—Germany (Dorpalen 1942) and Japan (Takeuchi 1980).
22. It is symptomatic of the enduring influence of Spencer that Sauer adopted what Duncan (1980) refers to as a "superorganic theory of culture" derived from Kroeber, who in turn had borrowed it from Spencer as his alternative to an environmental determinism itself profoundly influenced by Spencer! The tendency was to de-emphasize Spencer's "original factors" (the influence of environment on racial qualities) and emphasize his secondary ("superorganic") factors as time went on. Semple herself was involved in this change of emphasis in post-Spencerian thought.

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