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Human Geography and Ecological Sociology

The Unfolding of a Human Ecology, 1890 to 1930—and Beyond

This article discusses how American geography and sociology began their university institutionalization in the 1890s with some very similar disciplinary points of origin and understanding of their subject matter but subsequently carved out their own fields by creating new or abandoning old disciplinary areas. Some of the disciplinary "catchment areas" were fought over until they came under the heading of human ecology around 1907/8, which, at least in the case of sociology, later became an influential but nevertheless transient perspective. It is argued that the unfolding of human ecology can best be understood against the background of the interaction between sociological and geographical streams of thought beginning in the 1890s.

The Catchment Areas of Human Ecology

In tracing the early usage of the term and concept *human ecology* to sociology and urban studies of the 1920s, the historical literature has generally portrayed human ecology as an extension of plant and animal ecology to the human realm. More generally, human ecology has been depicted as a field that was invented by a group of sociologists in the Department of Sociology at the University of Chicago in the early 1920s (e.g., Abbott 1999; Bulmer 1984; Gaziano 1996; Matthews 1977). By way of completion, in this article the origins of institutionalized American sociology and geography (with a short sidelight to ecology) before World War I will be discussed, relating the disci-

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plines and their interactions to the unfolding of the 1920s human ecology as well as more recent approaches.

This study traces the emergence of ecological thinking and the usage of the term *human ecology* in prewar American sociology and geography, especially in the work of J. Paul Goode, Edward C. Hayes, Albion Small, and George Vincent. To illustrate how in the 1920s the sociological stream of human ecology finally attained a superior status to the biological and geographical disciplines, I analyze debates between scholars in the respective fields; namely those in which they sought to establish their unique "catchment areas" in order to maintain secure boundaries as well as build a basis for cooperation with neighboring disciplines. A *catchment area* is defined here as the domain that members of a discipline declare to be their turf, in which they can legitimately collect data, use methods, or refer to theoretical models that belong to their discipline. They can also have overlapping realms with other fields in order to include the possibility of cooperation with neighboring disciplines. However, the changes in catchment areas are not, as I will show, always immediately filled with neighboring disciplines' claims, as is implicitly proposed by Thomas Gieryn's notion of "boundary work."[1] I understand the abandoning of catchment areas as what Andrew Abbott (2001: 84) has termed an "empty space," where a vacant lot or unexplored zone is left between two rivaling streams of thought. Thus I will show how, with regard to the theme of the material environment in sociology and geography of the early twentieth century, a direction off the mainstream was chosen by one respective group of scholars, which led to overlapping catchment areas between certain practitioners of sociology and geography. This is even more important since most historians of human ecology have hitherto discussed its origins in terms of the merging of sociology and ecology in the 1920s while neglecting its predecessors in sociology and geography around 1900.[2]

I discuss how scientists in the field of sociology, such as Albion Small and George Vincent, tried to find their proper object of study and tackled their subject matter in similar fashion to the work of geographers of their time, beginning with American sociology in the Midwest of the 1890s. I then will discuss how from this platform several themes were shifted back and forth between the "catchment areas" of one of the specific fields, representative of the influence between the sociologist Edward C. Hayes and the geographer J. Paul Goode. I show how these constituent parts led to a perspective that came under the heading of human ecology first in geography and sociology

in the early 1900s, then—although only marginally—in ecology around 1913, and finally and most prominently again in sociology after 1920. In the final section I highlight the resemblance of this episode to more current arguments for a new ecological paradigm in environmental sociology since the 1970s.

Sociology and the Environment of Human Societies

In the 1890s American sociology and geography as named and "self-conscious" disciplines with their own practitioners were still defining their own subject matters. Debates on the human place in the natural world, the question of society and territory, as well as the visualization of humans on maps were often conducted in order to define the circumference and the boundaries of the respective disciplines. Although geography and sociology seemed to be the closest with regard to their goals, it was nevertheless the idea of a unique discipline of ecology that led to a hybrid catchment area claimed by both disciplines.

Ernst Haeckel (1834–1919) coined the term *ecology* (*Oecologie*) in his *Generelle Morphologie* of 1866. Haeckel's original definition understood ecology as the study of the relationship of organisms with their environment, emphasizing both the living as well as the nonliving components of the natural world. However, the term *ecology* was not much in use until the 1890s. In fact, it was the Danish botanist Eugenius Warming (1841–1924) and the German translation of his *Lehrbuch der ökologischen Pflanzengeographie* (1896),[3] a pioneering work in his field of plant ecology, that promoted the term *ecology* and made it known in wider circles of academia. From the Darwinian view of the struggle for existence, there came the idea of migration of faunal and floral elements and their cohesion into some form of association or society. Although Warming called his book an introduction to ecological plant geography, he also discussed the human influence on the environment and the importance of the human species for the science of ecology. The communal life of plants Warming described as a "social adaptation," whereas humans also played a pivotal role in influencing "the struggles between plant associations" that again influence human societies (Warming 1918 [1895]: 276). Warming (ibid.: 897) presented the importance of space for the understanding of plants and humans as an analogy, since "plants are seeking their place in this world in the same way as humans do."

The ecological character and the geographical basis of human societies were also of central concern to early sociologists at the University of Chicago. In 1892 Albion W. Small (1854–1926) became head of the new sociology department there, the first department of its kind in the United States. Small, who initially had trained for the ministry and who studied in Germany before he obtained his Ph.D. at Johns Hopkins University in 1899, became professor and president of Colby College and then earned a position at the University of Chicago, where he built the largest and most influential department of sociology in the nation. In addition, he founded, in 1895, the *American Journal of Sociology* (Abbott 1999; Dibble 1975; Hayes 1927). In collaboration with George E. Vincent, Small also wrote the first American textbook for sociology, *An Introduction to the Study of Society* (1894).

The centrality of geography, maps, and depictions of people in their natural environment was much emphasized in this monograph. Although Small and Vincent did not explicitly use the term *ecology* in their treatise, they outlined the methodology of the observing sociologist as similar if not identical to that of geographers and some botanists and zoologists of their time. In the introduction, Small and Vincent (1894: 15) describe their book bluntly as a "laboratory guide" to studying people in their "every-day occupations." Indeed, Small and Vincent (ibid.: 17) believed that their book was "to be compared with laboratory guides in biology." In other words, that it was a guidebook by which students of sociology could study society in a way that was similar to how an ornithologist studies birds in their natural surroundings. And this study of everyday human life explicitly included the relation of the social world to the material environment.

> Society, in order to maintain its coherence and continue its development, must constantly readjust itself to natural and artificial conditions, for the [social] organism sustains a relation of double reaction with its environment. Natural circumstances make an impression upon society, which in turn effects modifications in nature. These artificial arrangements again influence social perception, and are themselves further modified. (Ibid.: 336)

The authors regarded society as having a twofold relation to nature, since nature leaves an impression on society and society subjects nature to an endless series of modifications (ibid.). Indeed, at the end of many chapters, students actually had to draw maps as part of their assignments to grasp the

connections between natural features, farm placements, roads, buildings, and social life (ibid.: 126, 142, 166).[4] Small and Vincent were searching for a method to better understand people and their movements, especially with regard to the supply of natural resources. Small also hoped that the science of sociology would help to discover principles of social relations and social processes in such a way that they might assist social reform (see Small 1895). To this end, Small and Vincent took into consideration the location of villages, the relation to the soil, the influence of new means of transportation, and the distant points from which farmers came regularly to the nearest city. Sociologists, they asserted, must include the material environment in their observations.

> Yet the phenomena with which Geography, Physics, Chemistry, Geology, Physical Geography, Botany, and Zoölogy deal are of essential importance to the genuine sociologist, whether he studies society as a whole, or examines some specific group. It is, indeed, impossible to gain a clear insight into the fundamental phenomena of a community without a preliminary knowledge of its natural environment. (Small and Vincent 1894: 170)

Thus it is no wonder that the early students in the newly founded department had to take courses in a whole variety of disciplines, including biology and geology. Consequently, in an article entitled "Varieties of Sociology," Vincent (1906: 8) noted that "in general all agree that [society] is a product of physical and psychical forces."[5]

In Small's *General Sociology* (1905), the relevance of the natural environment for the analysis of social processes was still prevalent. The subject of sociology, Small states at the outset, "is the process of human association." He credited his student Edward C. Hayes for first formulating this theorem. To understand and analyze these processes, the conditions and elements of society need to be determined. Small (ibid.: 405–24) discussed the physical environment mainly as an urban environment and less with respect to natural resources and the sustenance of life. In his understanding, a "complete theory of human association must accordingly include a full account of all physical and vital forces in their action upon the conditions and incidents of association" (ibid.: 420). Here Small (ibid.) subsumed the material environment that has an influence on human society as part of the "social forces," ironically adding that "some of the social forces are not social at all." In this

important step, Small thus treated the material environment that stands in causal relation to human society as part of social forces and thus defined the material environment as part of the process of human association.

The concept of social forces in the American context resembled the Durkheimian notion of social facts (French, *faits sociaux*). In that context the term *social forces* was always understood as having a similar meaning to *social facts*. Indeed, the two terms were and still are today used interchangeably in the English language (e.g., Thompson and Hickey 1996: 4–11; already in Hayes 1908; and Ross 1911). The most common understanding of a social fact after Émile Durkheim was that the entry to the sociology profession has been to realize that the natural environment is a mere receptacle for human categories (Catton and Dunlap 1978; Douglas 1992; Gilbert 1989). Said Durkheim (1982 [1895]: 134), "The determining cause of a social fact must be sought among antecedent social facts and not among the states of individual consciousness." A social fact was everything that is endowed with the power of coercion on the individual. However, the material objects of society, in Durkheim's understanding, "are only ways of acting that have been consolidated" (ibid.: 58).[6] Thus he did not give the material environment the possibility of an originating motivating power for social change.

Geography as the Science of Life

Although the discipline of geography did not primarily have a reform focus, its definitions of the subject matter often were quite similar to those of the sociologists of the time and sometimes were developed in communication with their sociology colleagues. William Morris Davis (1850–1934) is generally regarded as the father of American geography, since he also founded the Association of American Geographers in 1904 and formulated several important definitions of the subject matter of the field. Davis (1909 [1906]) defined geography as the study of relations and the study of location or of distribution. An important distinction Davis made was between the physiographic and the ontographic: "A given object may belong under several different sciences, and may be treated in text-books on different subjects; it is the relation into which the object enters that determines its place" (ibid.: 11). Davis (ibid.: 12) thus defined the ontographic features of geography as those that bring "an organism into contact with the rest of the world," causing it "to enter into geographical relations. Commercial geography is largely concerned

with relations that grow out of this element of ontography." Hence plant and animal geography were associated with human geography under the general term *ontography* as the science of all life (Martin 1981).

The first geography department in the United States was founded at the University of Chicago. The new Department of Geography, which was separated from the Department of Geology, was established in 1903. Rollin D. Salisbury, chair of this department from 1903 to 1919, recruited two young scholars in order to develop a unique program for the discipline: one was Harlan H. Barrows (1877–1960); the other, J. Paul Goode (1862–1932). Barrows had studied geology at both the University of Chicago and Michigan State College, whereas Goode, a student of Davis, was recruited from the University of Pennsylvania, where he obtained his Ph.D. in economics in 1901.

In his lifetime, Goode was known as both a geographer and a cartographer (see Goode 1905, 1909, 1926, 1927). He is further noted for his invention of new methods to portray global distributions on maps. Goode edited many maps and books on geography, including the well-known *Goode's School Atlas*, which is now entitled *Goode's World Atlas* (the latest edition, no. 20, came out in 2000). Around 1900 Salisbury wanted Goode to develop a program of courses for the planned department. In 1902 Goode delivered a proposal for 12 courses. Many of his suggestions were adopted later. The new courses in geography "were planned to occupy the great uncultivated field between geology and climatology on the one hand, and biology, history, sociology, economics, anthropology, and political science on the other" (James and Martin 1981: 313). Goode's proposal of 1902 was intended as the basis for developing the first full-scale university curriculum in geography in America (Pattison 1978, 1981).

In 1904 Goode wrote the influential article "The Human Response to the Physical Environment." Here he discussed the hybrid character of geography, which has to study both the physical and the social environment. In borrowing ideas from Herbert Spencer, Lester Ward, Thorstein Veblen, and Franklin Giddings, Goode presented the content and bearings of different forms of environments (Goode 1904: 334–36). And indeed, the listings of different "environments" in the sociologist Franklin Giddings's chapter "The Elements and Structure of Society" in his *Inductive Sociology* (1901) and his article "A Theory of Social Causation" (1904) do strikingly resemble those of Goode (1904).[7] Goode's (ibid.: 342) outlook was that "progress in social

evolution is a record of a changing ratio between the influence of the physical environment and this growing social environment." And although modern society has increasingly emancipated itself from its dependence on the geographical environment, "we can never reduce this environment to zero. . . . These forces may be unseen, but they are nevertheless potent, and they are eternal" (ibid.: 343). Hence Goode, certainly not on purpose, limited the area of physical geography to an eternal, but all in all rather negligible, part of research on social life. In a figure of his on page 343 the importance of the influence of the physical environment for the understanding of human societies appears to be less than 20% of all influences, in contrast to some 95% in premodern societies.

An advancement on Goode's general description of 1904 can be seen in the presentation of the concept of ontography, which was understood as the geographical science of the relations between living beings in general. It was an important element of geographical research as understood by Goode and Barrows. For 1907 Goode announced a course entitled "Ontography," which he described as outlining "the principles of geography, with the purpose of emphasizing the interrelation of life and its physical environment, essentially an elementary course in plant, animal and human ecology" (Goode 1911: 111). Ontography, as introduced by Davis, in Goode's understanding was to be categorized in three special areas of ecology: human, animal, and plant. In other words, Goode implicitly saw the field of ontography and general ecology as synonymous. In any case, Gerhard Fuchs (1967: 85) observed that there is a long tradition of debate on theoretical questions, especially in American academia, before a descriptive term is committed to paper. Thus one can assume that at least since the very early years of the twentieth century, Goode and his geographer colleagues considered themselves geographers who were also human ecologists.

Another distinctive feature of Goode's teaching and the Chicago program in general was the emphasis placed on field studies. All graduate students were expected to obtain geographical knowledge via direct observation in and of the landscape. Goode, for instance, conducted field trips with his students, visiting farms, mines, and irrigated areas. This, as Preston Everett James and Geoffrey Martin (1981: 315) note, was important, since during the field studies the students also learned to cooperate with scholars from other disciplines. The original idea of the direct observation of and personal con-

tact with phenomena was something Chicago sociologists of the 1920s also propagated as the most feasible and useful methodological means of gaining information on the social world in natural settings.

Sociology: The Fruit and Flower of Geographic Studies?

On the lookout for interdisciplinary connections, Goode soon established contact with Edward C. Hayes (1868–1928), a professor of sociology at the University of Illinois, to discuss human ecology. It is certainly no coincidence that Goode corresponded with a sociologist like him. Like Vincent, Hayes was also a student of Small in Chicago, and Small sent him to study in Germany for a year. In 1902 Hayes obtained his Ph.D. in sociology at the University of Chicago with a dissertation titled "Sociological Construction Lines," which was published as a monograph in 1905 and in a revised and extended version under the same title in five consecutive issues of the *American Journal of Sociology*. In 1907 he became professor of sociology at the University of Illinois, where he was also head of the department until his death in 1928.[8] Hayes was a prominent representative of the discipline of sociology in the early twentieth century. In 1915 he published an influential introductory textbook on sociology (Hayes 1915), and in 1921 he became president of the American Sociological Society (later renamed the American Sociological Association). In 1908 Goode wrote a letter to Hayes that was quoted at length by the latter in a chapter on the relationship between geography and sociology.[9] Human ecology, according to the passage by Goode quoted in Hayes 1908, is to be understood as the interface between the two disciplines.

This seems to be the first time that the term *human ecology* was discussed in a scholarly magazine, the *American Journal of Sociology*. When discussing the relationship between geography and sociology, Goode explained that geography should also pay more attention to migration and mobility (in Hayes 1908: 394). These were topics that in 1902 Goode had filed under the rubric "economic geography," an area that was also to cover the "geography of commerce"—defined as "the principles determining the rise of international trade; the choice of routes; methods of business organization; cooperation and competition; government restriction and encouragement" (Goode 1902, as reprinted in Pattison 1978: 6–7). Economic geography is generally

regarded as dealing with patterns of economic distribution and with the factors and processes affecting the areal differentiation of these patterns on the earth's surface.

In 1908 Goode had come to believe instead that the field of human ecology would be that best equipped to study these phenomena and that sociologists and geographers were the right people to execute this together with economic geographers. For Goode, "the physical environment itself is the fundamental part of the field" of geography. He then defined human ecology as "a study of the geographic conditions of human culture" and went on to assert that the term *human ecology* "passes beyond geography," whereas geography "should be the conscious and purposeful preparation" for other disciplines, especially sociology (quoted in Hayes 1908: 395). Thus Goode suggested to Hayes that human ecology be viewed as a new hybrid field, where geography builds the factual foundation and sociology the abstractions from the geographic facts. In contrast to the perspective in his course outline from a year before, where human ecology was considered to be a part of ontography, now human ecology had partially shifted into the realm of the sociologist. Said Goode (ibid.), "I like to think of sociology as the fruit and flower of geographic study, and that this service will prove the validity in the point of view of the geography today."

For a time in the early 1900s, human ecology seemed to hold some promise for a cooperative framework. At least Hayes's outlook and conclusion about Goode's ideas and about the future relation between geography and sociology was very hopeful. Hayes (ibid.) wrote, "Thus it is that geography and sociology become allies." Yet Hayes also wrote, only one page later, that "an attempt to explain the distribution of social phenomena by reference solely to conditions supplied by peculiarities of the earth's crust would prove illusory." Hayes (ibid: 399) left no doubt "that tracing the effects of geographic conditions on social phenomena . . . is distinctly an excursion into sociology, and contributes an essential part of the explanation sought by sociology." To be sure, for Hayes (ibid.: 388) a sociological "explanation will not be complete until the four factors in the explanation, physiologic, technic, geographic, and psychic, are correlated into one description. It cannot be made by any one of the sciences that discover a part of the conditions of social reality, but only by a sociology which gathers all of these conditions into one perspective."[10] In other words, for Hayes geographers did the rough spadework for sociology, that is, the collecting of facts, partially again from

other sciences. The much smarter sociologists carried out the intellectual or scientific work of abstraction and conclusion.

Interestingly enough, after 1908 one cannot find any reference in Goode's published work where he used the term *human ecology*, although many of his articles and especially his monograph *The Geographic Background of Chicago* (1926) implicitly dealt with the human aspects of ecology as introduced by Haeckel and Warming.[11] Thus Goode himself gave the field to sociology, and his colleague Harlan Barrows, as we will see below, could not get it back in 1922, when he claimed geography to be human ecology. In any case, Goode's idea of human ecology from 1907/8 redrew the catchment areas of geography and sociology and thereby opened up new areas for intellectual exploration.

In the following years, Hayes declared that sociology should be a discipline based on pure scientific methods, along the lines of a natural science discipline. This was nothing special. Science talk and the urge for sociology to become an objective science in order to separate it from normative social work, social reform, and welfare was a general strategy for early-twentieth-century sociologists to establish their field (Bannister 1987; Deegan 1988). However, in a Goodian scientific manner, Hayes (1911a), in an article entitled "The 'Social Forces' Error," also started an attack on "metaphysical tendencies" in sociology, which, he claimed, neglected the importance of the natural environment for the analysis of societal development. His suggestion that sociology be led in the direction of a real science was similar to the explanations and course descriptions of his contemporaries in geography. In order to attain a proper and scientific understanding of society, Hayes said, both the physical and the human sides need to be included in sociological analysis. In his dissertation (Hayes 1905 [1902]: 628), he quoted Gabriel Tarde's[12] definition of society: "Societies (plural) are not merely masses of inter-spiritual action; they are at one and the same time masses of inter-spiritual and inter-corporeal actions, combined with many physical actions, united struggles with the forces of nature to repel and to utilize them." The external forces to which Hayes referred were, unlike in Small's (1905) and in Durkheim's definition of social facts/forces cited above, potentially material.

In that respect, Hayes's work certainly did go further in the direction of a protoecological sociology than that of his contemporaries and their Durkheimian notion of social forces, since the natural environment was given a direct influence on human society without falling into a one-sided determinism. The idea of social forces as the only explanation, to Hayes, was too meta-

physical an approach, since it knew no geography and could not bear any idea of a material environment. To give predictions for future developments of society, Hayes wanted a sociological framework for analysis to look like this:

> Given a population whose psychophysical *organisms* have such and such recognized tendencies, set in the midst of such and such a *material* environment, supplied in part by nature and in part by labor of man, and in such and such a *social* environment, consisting of the already prevalent activities, then such and such further activities will on the whole thereafter prevail, and if given modifications are now introduced into their physical or social environment such and such changes in the prevalent activities will ensue. (Hayes 1911a: 625; original emphasis)

Hayes here outlined a flexible model of human society and the environment, which propagated neither to reduce society to nature nor nature to society but instead to explore their interactions. The four core elements Hayes repeatedly named for the study of sociology were (1) the population as a psychophysical organism, (2) the social environment, and the natural environment consisting of (3) the human-made and (4) the naturally occurring. Hayes (1905 [1902]: 641) believed that "every human act, every human experience, has a natural history, and has its roots in the interplay with other lives." He (ibid.: 751) wanted to transfer the chief attention of sociology to "the processes of interaction that constitute society." Social processes, rather than groups or societies, should be the center of sociological research. Hayes (1911a: 625) argued that sociology "must adopt the method of other sciences and account for its realities in terms of conditioning phenomena and relations between phenomena."

Hayes's sociological phenomena to be studied fell into two main groups, social activities and the conditioning factors that shape and alter these activities (Hayes 1911c, 1915: chap. 1 and 2). This was a step forward to differentiate the four causal categories and to give human activities in their geographical environment a unique position so they could be operationalized and be "correlated into one description" (Hayes 1908: 388). It was, in a way, an attempt to solve the same tension between geography as a natural science and geography as social analysis that Goode had faced. Hayes's suggestion was to study social activities in a two-step approach: Sociological phenomena should be analyzed in a descriptive way as regards the processes of human association, and subsequently sociologists should explain these phenomena "in the light

of all that affects them" (Hayes 1906: 65). Thus he proposed to study forms of association to determine subsequently which were the main influences and possibilities that allowed them to happen out of the pool of four variables. Hayes (1915: 335) repeatedly stated that his approach was to be understood as a two-way relationship and that the four kinds of conditions were both those "out of which social realities issue and by the modification of which social realities modify."

Hayes (1906: 59) differentiated between all kinds of physical phenomena and "social-physical phenomena" in order to determine the natural environment's significance for sociological understanding. This can only be accomplished after the social activities (behavior) have been determined—the first step—in order to make an optimal explanation in the second step. Hayes (ibid.) called them social-physical phenomena "so as to set them off from all other physical phenomena less related to the sociological."

Hayes's article on social forces, which originally was read at the 1910 annual meeting of the American Sociological Society, provoked some critical reply and launched a debate quite prominent in its day. From the four explicit replies to Hayes's paper that found their way into the *American Journal of Sociology*,[13] only one—the shortest, only half a page long—clearly supported Hayes but in a very general way in claiming that "sociologists cannot afford to forget that social phenomena are continuous with other natural phenomena" (Parmelee 1911: 638). The other three, by Small, Edward A. Ross, and Carl E. Parry, more or less opposed this view. Even Small (1911) was undecided and did not clearly support his former student. As can be expected, in his concluding comment Hayes (1911b: 644) was at pains to repeat that sociologists should adopt "the pursuit of explanations that consist in reference to conditions geographic, technic, psychological and social." Generally not too many sociology colleagues appeared to be convinced by what they saw as the erroneous belief in social forces. The debate was apparently put to rest around the beginning of World War I.

However, departing three years later from his reflections in "The 'Social Forces' Error," Hayes (1914: 813), in "Effects of Geographic Conditions upon Social Realities," again started with the observation that "prevalent social activities are molded by conditions of four kinds: (1) geographic conditions, or the natural physical environment; (2) technic conditions, or the artificial environment; (3) psychophysical conditions, or the hereditary and acquired traits of population; (4) social conditions, or the causal relations

between the activities of associates." He specified in a terminology similar to Small and Vincent (1894) that "geographic conditions, or the natural physical environment inhabited, must be recognized as including aspects, soil, water supply, other mineral sources, flora, fauna, and topography" (Hayes 1914: 813). In Hayes's concept, human society does not simply adapt to its environments, as is implicated in the notion of environmental determinism prevalent in early-twentieth-century social thought dealing with the natural environment. Rather, Hayes viewed human society as active and as acting not only upon its social and natural environment, but also on and with technology. As in Hayes's articles and reflections from the years before and after, this again outlined what some 50 years later came to be known as the POET model of Otis Dudley Duncan (1961): human population (P), organization (O), environment (E), and technology (T). To this I will turn later in the article.

And yet in Hayes's well-known introductory textbook *Introduction to the Study of Sociology* (1915; revised version appeared in 1930 after his death under the title *Sociology*), he referred to the importance of the material environment for understanding social processes and even devoted a chapter to "geographic causes and their social effects." He discussed his framework for the four sets of categories for the understanding of social processes in detail in four respective chapters, which totaled over 300 pages. To date this is perhaps the most comprehensive discussion of causal variables in American environmental sociology.

After all his quibbles with fellow sociologists, Hayes could write on the importance of the geographical environment for sociological understanding of society without quoting or referring to geographers, save the climatologist Ellen C. Semple's book *Influences of Geographic Environment* (1911), listed in the bibliography for further reading. One can conclude here that Hayes wanted to build a purely sociological theory in which natural environmental variables would play a definite and central role. Thus by around 1905–15, Goode and especially Hayes had already sketched and marked out a realm and scope of human ecology.

Human Ecology as Part of Animal Ecology

Around the turn of the twentieth century, sociological ideas became influential in the newly emerging field of ecology. Indeed, Ronald Tobey (1981: 83–86) believes that the ecologist Frederic E. Clements's concept of ecology

was directly derived from the ideas of community in sociology and the metaphor borrowed from sociology that described a social unit as a kind of organism. However, from here it took more than a decade until "human" ecology became a theme in American ecology. In 1913, the animal ecologist Charles C. Adams (1873–1955), who, like Hayes, was teaching at the University of Illinois,[14] started pondering the role of human ecology in the system of other sciences. Adams (1913: 10) stated that the different ecologies—human, animal, and plant—had for practical reasons been developed independently of one another; he believed that "to the mutual advantage of these subjects they are now rapidly converging, and we may anticipate a similar relation between general animal ecology and the ecology of man." However, Adams made it clear that human ecology still needed to be understood as a part of his own discipline, animal ecology. In Adams's view, sociology was also a part of general ecology.

For biologically oriented authors like Adams who were interested in human ecology, the field meant treating human communities as one more animal community in the natural environment. Unlike human geographers of the early twentieth century, biological ecologists were solely interested in ethology, instincts, and physiology and not in culture, perceptions, and consciousness. In the years following Adams's introduction of the field of human ecology as part of animal ecology from a perspective that was very little interested in the cultural side of human ecology, the term occasionally reappeared.[15] In 1916, at the first meeting of the newly founded Ecological Society of America, the geographer Ellsworth Huntington encouraged other geographers to join the new society "so that human ecology would be well represented" (Cittadino 1993: 255). This led to some work on the connection between civilization and climate, where Huntington (1919) boldly linked the effects of different climatic regions to the progress of civilization. This environmental determinism was not well received outside the borders of geography and increasingly came under attack in geography itself. Huntington also hardly referred to human ecology after World War I, although he was noticed by some sociologists (e.g., Park 1926a) and even published in sociological textbooks and journals (e.g., Huntington 1927, 1933).

In addition, as Robert McIntosh (1985) has argued, ecology as an academic discipline in America developed a self-awareness as a discipline that focused mainly on plants and animals only in 1920 with the founding of the journal *Ecology* (subtitled *Continuing the Plant World*). However, in the

inaugural volume, the lead article, "The Scope of Ecology," still argued for a broad view of ecology, even stating that "geography, in so far as it is the study of man in relation to his environment, is human ecology" (Moore 1920: 4). Two years later, Steven Forbes (1922), in his oft-quoted article "The Humanizing of Ecology," also put the case for including "civilized man" and his relation to the natural world in the subject matter of ecology. However, from then on ecologists and biologists rarely used the phrase. As McIntosh (1985: 302) observes, such single factor and simplifying approaches to human society in ecosystems—environmental determinism—soon disappeared from the agenda of ecology, and "nothing more sophisticated replaced it." Humans were generally regarded as lying outside of the scope of scientific ecology that studied natural interactions between organisms. Thus the arena was free for a "purely" sociological take on human ecology, although there were still a few geographers who claimed the field as theirs.

To sum up: Neglected sources of human ecology that have been discussed so far were, one, the contact between Chicago geographers and sociologists in the early 1900s and, two, the ideas of animal and plant ecologists around World War I. In subsequent years, geographers' and sociologists' early attempts to ecologize their disciplines, as well as animal and plant ecologists' claims to include humans into their fields of study, appear detached from the new human ecology of the 1920s developed by sociologists in Chicago's Department of Sociology.

The Shifting Sands of Human Ecology

In 1935, Charles Adams reflected on the relation between general ecology and human ecology. He remarked that "the recognition of human ecology and utilization of the definitively developed ecological ideas are of very recent development. The older authors recognized the general field but did not elaborate it" (Adams 1935: 328). In this article Adams referred to himself as one of "the older authors" and subsequently acknowledged the sociologists of his time as the "real" human ecologists.

In 1914, Robert E. Park (1864–1944) joined the sociology faculty of the University of Chicago, at a time when Albion Small and W. I. Thomas were still the eminent figures in the department there. In 1916, Park and his collaborator Ernest W. Burgess began to collect essays for their influential introductory textbook *Introduction to the Science of Sociology* (1921).[16] In referring

to Frederic Clements, Park (1918) explained the potential of plant ecology for constructing a sociological perspective and as a point of view for understanding social processes. Later, Park and Burgess (1972 [1921]: 555) wrote that Clements's "analysis of the succession of plant communities within the same geographical area and of the relations of competitive co-operation of the different species of which these communities are composed might well serve as a model for similar studies in human ecology." However, one does not find any comparisons and parallels between geography and sociology here that are linked to human ecology. Furthermore, Park repeatedly stated that ecology, since it was to be understood as a new term for the older "economy of nature," is to be perceived as a sociological perspective used in the biosciences. For Park, the principle of "competitive co-operation" was an application of a sociological principle to organic life (ibid.: 555–59; cf. Park 1936a, 1939). Thus, Park superimposed a sociological perspective on other sciences, thereby shielding human ecology from the potential accusation that it was a "biologization" of the social in simply extending the realm of geography and ecology into sociology.

Thus geographers who turned their attention to the human side of geography were confronted with a dilemma that had already been sketched by Goode in 1904. On the one hand, geographers focused on geology, meteorology, or geophysics. On the other hand, in order to overcome the accusation of one-way environmental determinism acting upon human societies, human geographers tried to balance out the picture. However, here again they were in danger of being mistaken for second-class anthropologists, economists, or sociologists. Thus they implicitly fell back into an environmental determinism in that the focus was centered on the relationship between nature and human societies.[17] Consequently, in 1918 Nevin Fenneman, in his presidential address to the Association of American Geographers, quibbled about geographers' fear that other disciplines were doing geographical work under other names. He argued that geography belonged to the family of physiography, climatology, the study of natural resources, and ecology but that its proper field was "the study of areas in their compositeness or complexity, that is *regional geography*" (Fenneman 1918: 7; original emphasis).

In 1922 Goode's colleague Harlan Barrows from the geography department at Chicago seemed to be fighting back, aiming to reoccupy territory and broaden the catchment area that had been left to the sociologists in that he titled his presidential address "Geography as Human Ecology." He declared

human ecology the unique field of geography, since geography did "not deal with the relations of plants and animals to their natural environment, but with plants and animals as elements of the natural environment affecting man" (Barrows 1923: 4). He showed the differences between the realms of historians and geographers, where at the most fundamental, the former deals with the past and the latter with the present. Thus "history is concerned with *time* relations; chronology is its organizing principle. Geography is concerned with *place* relations; ecology might be its organizing concept" (ibid.: 6; original emphasis). Geography's relations with sociology did not appear so clearly for Barrows. He stated that sociology had had some difficulties finding its proper niche among the disciplines but appreciated that "the contributions of sociology to knowledge have been of the first order of importance." Barrows argued that sociology "has done some work in human ecology." However, he remained undecided whether in the future "this work will be done chiefly by geographers or by sociologists" (ibid.). His cautiousness with regard to the sociological stream of human ecology, expressed in his article "Geography as Human Ecology," is striking and doubtless had to do with the fact that the sociologists of the time had already risen to some prominence among geographers. To be sure, the Chicago sociologists of that time appeared on the scene with much more self-confidence than either the ecologists or the geographers of the day. This, to a large extent, certainly had to do with the personality and strategic planning of the establishment of sociology of Robert E. Park.

Contrary to his geographer colleagues, Park's definition of geography in comparison to sociology was straightforward:

> Geography as a science is concerned with the visible world, the earth, its location in space, the distribution of the land masses, and of the plants, animals, and peoples upon its surface. . . . As soon as the geographer begins to compare and classify the plants, animals, and the peoples with which he comes in contact, geography passes over into the special sciences, i.e., botany, zoölogy, and anthropology. (Park and Burgess 1972 [1921]: 8)

It thus excluded parts of Goode's broad definition of the field and veered instead in the direction that Hayes had already outlined. In the same year that the Park and Burgess *Introduction* was published, Park reviewed two books on human geography. Whatever the differences between several streams of human geography might be, for Park (1921: 786), the general take was that the

field "reduces itself to an investigation of the manner in which the organization of life within the house, within the communities, i.e., village or city, and within the typical geographical areas (islands) is determined by geographical facts, that is to say, soil and water, flora and fauna, coal and other minerals." Five years later, in a review of some books on the environmental basis of society, Park (1926a: 487) stated that "the relations between human geography and human ecology . . . are so obscure that it is important, in the interest of clear thinking, to determine boundaries—and not merely boundaries, but points of view and methods" (cf. McKenzie 1926).

Park's fight to broaden sociology's catchment area, aimed at drawing the line between sociology and geography, clearly followed the lead that Goode and Hayes had provided almost 20 years earlier, though Park (1926a: 487) put it more succinctly, if not in fact more banally: "Sociology starts with society, but geography starts with the soil. . . . Sociology seeks to classify its facts and to describe social changes in terms of processes." In order to have both sides—the natural scientific or biological and social—included in human ecology, the division of labor between geography and sociology was to be understood as follows: Geographers simply described and collected particular and individual facts in an idiographic manner, whereas sociology sought for universal characteristics, a nomothetic approach. The distinction between the nomothetic natural sciences and the idiographic historical sciences stemmed from Park's dissertation adviser Wilhelm Windelband from the University of Heidelberg (Windelband 1900 [1894]).[18] Interestingly enough, Park found this distinction expressed most succinctly in the writings of the French geographer Lucien Febvre, who was at the time (1926) a professor at the University of Strasbourg. Thus Park (1926a: 487) simply quoted Febvre's view that geographers will make no concession to "the mania for classification," since to proceed in that way "would mean passing over, in most cases, anything peculiar, individual, or irregular—that is to say, in short, all that is most interesting." Referring to Febvre elsewhere, Park (1926b: 2) stated, "Geographers, like historians, have been traditionally interested in the actual rather than the typical. Where are things actually located? What did actually happen? These are the questions that geography and history have sought to answer."

Thus with this distinction taken from the self-understanding of a geographer himself, Park had an easy job of pushing geography into the realm of the idiographic social or historical sciences, although these might be inter-

ested in geology or natural resources. Sociology, on the other hand, became a natural science, though it did not have the tools traditionally regarded as the true sign of a natural science, for example, measurements of instincts or physiology. Similar to the Chicago geography program from earlier in the century, Park propagated direct observation of and close acquaintance with phenomena as the most feasible and useful methodological way to gain facts on the social world, that is, what was subsequently termed the method of participant observation. At the very end of his oft-quoted article "Human Ecology," Park (1936a: 15) summarized the study of society as a whole and proposed four co-evolutionary variables that interact as different aspects of one society: "(1) population, (2) artifact (technological culture), (3) custom and beliefs (non-material culture), and (4) the natural resources" (similar in Park 1933). This model of four variables was divided into two analyzable "orders" of social forces: the ecological order of unplanned "locomotion" (biotic order) and the moral or cultural order of conscious meaning and willed institutions.

The core of Park's distinction of the levels of observation in human ecology was, as in Small and Vincent's idea of the laboratory, that sociologists could study society like biologists study living organisms. However, if only such methods were used, one could not analyze that which is distinctly human. This at first sight resembles Hayes's two-step approach discussed above. However, Park appeared to differ on two points: First, the beginning of Park's investigation was the biotic order. Only after this has been studied did he add the question of what is distinctly human—the cultural order, which he saw as the "limiting factor" (Park 1936a: 15) for the biotic order. Second, the interactions of the four variables are not explicitly connected in their relation to the two orders but are loosely described as those "that maintain at once the biotic balance and the social equilibrium, when and where they exist" (ibid.).

Although Park and Burgess in their *Introduction* included the writings of many biologists, they did not include these authors and passages where human ecology was discussed. There was, for instance, no mention of Goode at all. Hayes's only appearance was the listing of his 1914 article "The 'Social Forces' Error" at the end of a chapter entitled "Social Forces," in the selected bibliography, loosely referred to as a contribution to the understanding of "interests and wants" (Park and Burgess 1972 [1921]: 499). Charles Adams was mentioned briefly together with other biologists of the time in relation to biological competition, and his book *Guide to the Study of Animal Ecology*

(1913) was listed together with those of numerous other plant and animal ecologists in a bibliography at the end of a chapter on "society and the group." There was no mention of human ecology at all. In the following years, Park ignored authors like Goode, Adams, and Hayes.[19] Thus Park filled the "empty space" left by authors such as Hayes or Goode about a dozen years earlier in a process of "rediscovering the wheel" (Abbott 2001: 17).

After ecology had gone its own way after World War I, excluding humans as objects of study, the competition between geography and sociology became more intense. The attempts of Huntington and Barrows illuminated once more that the two geographies—the physical and cultural—belonged to different worlds that could not be easily bridged. Sociology, on the other side, had freed itself from an environmental determinist stream around 1900 and thus had built a secure platform from which it could reach out into other disciplines' realms and even, as was the case with Park, claim to superimpose a sociological idea onto other areas. From here on it appears that most—if not all—the contents pertaining to a human ecology (including the name itself) were borrowed from geographers of an earlier generation and could subsequently be incorporated into the realm of sociology. This was so in part because geographers were insecure about including the human components of the earth's surface in their field, and sociology as a social science discipline was simply more aware of its own field, so that its reach could be widened. Park at least seemed to have been very self-conscious about human ecology as a sociological enterprise. He, for instance, was quite content to fraternize with the so-called "Ecology Group," organized biweekly by Chicago ecologists and which he frequently attended, at the University of Chicago in the late 1920s and early 1930s.[20]

On Maintaining and Abandoning Disciplinary Catchment Areas

To maintain the human ecological catchment area, Robert Park also had to give assurances that he did not want to leave the field of human ecology to the biological ecologists, since an approach that reduced all social relations to relations of space would sacrifice the pivotal point of a sociological understanding of human relations (Park 1936a: 12–15, 1936b: 175–79). Although Park tried to be clear about this point, it was the focus of criticism in the late 1930s, when Park was accused of having moved too far into the realm of the

biological sciences, and sociology had to decide whether it was to be a social science or largely an appendage to biological ecology. Beginning in the 1930s, ecological approaches in sociology generally came under severe attack (e.g., Alihan 1938; Gettys 1940; Quinn 1939), not unlike the criticism Hayes had received in 1911 in the social forces debate. With the integrity of sociology increasingly predicated on the idea of social variables acting as both theoretical cause and effect, the result could not help but be a sort of institutionalized defensiveness against suggestions otherwise.

Out of this clash between perspectives on the social versus the natural, an extreme form of sociologization followed in the 1940s, leaving blank attempts of a sociology that tried to include both sides of the cleavage. In the years to follow, the focus was given to intentional actions, and human beings were increasingly regarded as exempt from the normal run of naturalistic explanation applied everywhere around them. Any effort to introduce things nonsocial into the equation seemed to threaten the very survival of the sociological enterprise itself. As a consequence, in 1958, George A. Theodorson (1958: 351) could state in a review on human ecology in contemporary sociology that Park's "human ecology essentially is a thing of the past."

In a nutshell, the divide between a sociological and a geographical conception of human ecology appeared to be an unbridgeable one and one that in the end was only made wider by shifts in the catchment areas of the disciplines of ecology, geography, and sociology. Every time the realm of human ecology as an interdisciplinary enterprise was shifted, the identity of the field became fuzzier. On the one hand, human ecologists remained strategically oriented toward their goal of being a part of a certain discipline; on the other hand, they also reacted against its disciplinary embeddedness by changing research foci and forging connections with other disciplines. This ongoing tension between strategies of disciplinary maintenance and the abandonment of certain catchment areas on the fringe of a discipline led to human ecology's failure to become a unified enterprise.

Outlook: Yet Another New Human Ecology?

After the 1950s, many different notions of human ecology emerged in the natural and social sciences, especially in economics, medicine, psychology, and related fields that were conceptually not related to the sociological ideas

of an earlier generation. Other than the name, they did not have much in common (cf. Bennett 1993; Berry 1976; Bruhn 1974; Lee 1985). To be sure, after the 1950s only very little research in the human ecological realm was undertaken by scientists who regarded themselves as sociologists.[21] In 1961, Leo Schnore (1961a: 131) observed that interest in human ecology in sociology had considerably declined and that "only 100 out of 4200 members of our professional association select it as a major interest."

However, in response to public concern for environmental matters, after the late 1960s, sociologists again began to undertake research on environmental themes. The formation of a separate section on environmental sociology by the American Sociological Association in 1976 was a milestone, but the first explicit formulation of the field can be traced to a series of influential articles by William R. Catton and Riley E. Dunlap (e.g., Catton and Dunlap 1978; Dunlap and Catton 1979). Catton and Dunlap's main target was the anthropocentrism underlying all of classical sociology that did not pay attention to the nonsocial, that is, the biophysical world of society. They urged contemporary sociologists "to rethink the traditional Durkheimian norm of sociological purity—i.e., that social facts can be explained *only* by linking them to other *social* facts" (Catton and Dunlap 1978: 44; original emphasis). Instead, they called for a new ecological paradigm in sociology to stress the ecosystem dependence of modern, industrialized societies. Although Catton and Dunlap might not have intended it (Dunlap 2002), their line of argument was generally understood as targeted against the classical tradition that "has been inhospitable to the nurturing of ecologically-informed sociological theory and research" (Buttel 1986: 338).

Ironically, Dunlap and Catton (1979: 64), certainly the most influential writers in the new subdiscipline, veered with surprising unanimity toward Goode/Hayes's analytical framework as well as Park's attempts of some 70 and 50 years earlier. Environmental sociology, even more ironically, was sometimes also called the new human ecology. The "new" human ecology, however, referred solely to the ideas of such authors as Duncan (1959, 1961), who himself dismissed earlier attempts, like that of Park, not to mention geographical and sociological literature from before World War I (Maines et al. 1996: 527–29). Duncan (1961: 142), who even taught at Chicago in the sociology department in the 1950s, warned social scientists of Park's "limited gleanings." Duncan termed his attempt the POET model, an acro-

nym for portraying the interaction of population, organization, environment, and technology. This, of course, was merely a plagiarism of the Hayes/Park models.

Other contemporary sociologists from different theoretical backgrounds who discussed a sociological perspective that tackled the natural environment sometimes took an almost hostile stance toward the classics in general. Luke Martell (1994: 10), for instance, does not question the claim that sociology so far had neglected the natural world, but simply asks for reasons for the "sociological inertia on the environment." As a way out of this inertia, Richard Norgaard (1997) proposes a "coevolutionary sociology," an approach to explain environmental problems that has obvious affinities with earlier approaches in sociology discussed above. In order to position himself as superior to the classical tradition, Norgaard (ibid.: 158) argues that "sociology's modernist beginnings . . . have constrained sociological thought on progress in the environment in such a manner which has made it ill-suited for interpreting current environmental crisis." Niklas Luhmann, in his prominent book *Ecological Communication* (1989 [1986]), even devoted a whole chapter to lament the "total abstinence" of sociology from environmental and ecological issues until the early 1980s. In other words, contemporary authors criticize classical sociology for exactly the same reasons that, some 80 years earlier, authors opposed Hayes and that, some 40 years earlier, authors such as Milla Alihan (1938) and W. E. Gettys (1940) argued for as a way to free sociology from its shortcomings, that is, its affinities with the ecological sciences in order to bring in factors like natural resources or material elements in the analysis of society.

In short, environmental sociology of the 1970s was self-consciously fashioned as a critique of mainstream sociology as well as the classical tradition, which was said to be blind to its material environment. This perspective presents the "new" new human ecology of the 1970s in a vacuum, detached from its ancestors. Contemporary environmental sociologists could fill the empty space left by geographers and sociologists from their discussions in the late 1930s and make new claims for their respective catchment areas. Hence, the historical understanding of today's new human ecology and environmental sociology, and thus its strengths and limitations, can best be understood against the background of the rivalry over common catchment areas between neighboring disciplines of sociology beginning in the 1890s, continuing in the 1920s and 1930s, and reappearing in the 1970s.

Notes

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1 Gieryn (1995, 1999) is concerned with the creation and maintenance of boundaries between science and nonscience and between disciplines that have different knowledge bases, methods, and practices. On the usage of ecological metaphors for "boundary work" in interwar sociology, see Gaziano 1996. For an excellent discussion of the notion of boundary work and related concepts by a historian of ecology, see Kohler 2002: chap. 1. Examples in changes of possessions of "catchment areas" can be seen in the decoupling of demography from sociology in some parts of the field in the 1930s or more recently with cultural studies, which now is using approaches that earlier belonged to sociology proper.

2 Notable but patchy exceptions are to be found in Entrikin 1980; House 1929; and Theodorson 1958. For a discussion on some of the meeting points between early American ecology and sociology via the work of Edward A. Ross, Roscoe Pound, and Frederic Clements, see Gross 2002.

3 This book, which was originally published in Danish as *Plantesamfund* in 1895, did not appear in English before 1909—as a slimmed-down version. Then it carried the title *Oecology of Plants: An Introduction to the Study of Plant Communities*, still with the Haeckelian spelling of *ecology*. The following quotes from this book are my own translations from the German.

4 On Robert Park's background in geography and mapping methods during his studies in Germany, see Entrikin 1980; Gross 2001: chap. 5; and Lindner 1996 [1990]: chap. 2.

5 Small (1906), however, in the same issue of the journal in a discussion entitled "The Relation between Sociology and Other Sciences," did not explicitly mention geographical knowledge. Furthermore, in his later book *Origins of Sociology* (1924), no references to geographers or any geographical knowledge for social analysis are found. It thus seems that Small had abandoned his interest in the natural environment after 1905.

6 On Durkheim's debate with French geographers of his time on very similar questions around the subject matter of sociology and geography, see Berdoulay 1978. A more far-reaching interpretation of Durkheim's concept of social facts can be found in chapter 3 of Gross 2003.

7 For a more detailed discussion of Giddings's thought on nature and society, see chapter 3 of Gross 2001.

8 Unless otherwise noted, the biographical information on Edward C. Hayes comes from the Hayes clippings files at the University Archives of the University of Illinois at Urbana–Champaign.

9 Unfortunately, the biographical files in the Special Collections Research Center at

the University of Chicago Library do not hold any original letters or manuscripts from Goode or Barrows (Alznauer 2002).

10 However, somewhat misleadingly, later in the article Hayes (1908: 400) states that "geography describes the regions of the earth by bringing together into one description all the various facts separately studied by the different sciences." Given his detailed discussion on sociology's place among the sciences, this statement is probably to be understood as geography collecting data from other *natural* sciences.

11 Goode here did not attempt to leave the field of physical geography. The book is written from a "geologist's vision" (Goode 1926: 3). However, in the introduction he calls the city "shaped like a doughnut" (ibid.: 1) and goes on to describe the city as a "system in dynamic equilibrium. . . . It is a vortex, into which there is a continual flow of people and of food and other commodities, and out of which there is a flow of people and of goods more or less transformed" (ibid.: 1–2).

12 A recent appraisal of Gabriel Tarde's work with respect to his society-nature reflections can be found in an enlightening article by Bruno Latour (2001).

13 The debate was published also in the *Papers and Proceedings of the American Sociological Society*, where one more reply is listed. This one, however, did not touch Hayes's paper explicitly. In the *American Journal of Sociology*, this reply, plus one by Ulysses G. Weatherly, are included but apparently refer to a preceding paper by Frank Blackmar, "Leadership in Reform."

14 Robert T. Chapel at the archives of the University of Illinois at Urbana–Champaign informed me that there is no evidence in the archival records for a written communication between the two scientists.

15 McIntosh (1985: 302) also notes that during this time the British Ecological Society, at its first summer meeting in 1914, defined ecology as including human ecology.

16 This book is often incorrectly cited as the first written source for the concept of human ecology. See also Catton 1994.

17 A typical and prominent example is Davis 1924, where he pondered the progress of geography in the United States by focusing mainly on the physiographic side of the field.

18 Windelband's (1900 [1894]) chapter that defines the differences between nomothetic and idiographic has been translated by Park in the Park and Burgess reader (1972 [1921]: 8–10). On Park's interdisciplinary background, see Entrikin 1980; Gross 2001: chap. 5; Lindner 1996 [1990]; Matthews 1977; and Raushenbush 1979.

19 I could not find any references to these authors in all the published papers and monographs by Park save the two references in the Park and Burgess reader. Burgess (1925), however, shortly mentioned Adams 1913 in an article on neighborhood work.

20 This group is mentioned in Shore 1987: 103. For a different view, see Mitman 1992: 92.

21 Notable exceptions are a book by Hawley (1950) and a book by Firey (1960) as well as a set of articles by Duncan (especially Duncan 1959, 1961) and the work of Gibbs and Martin (1958, 1959). For a singular discussion of a sociologist on the relation between geography and human ecology of the time, see Schnore 1961b.

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