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PARADIGM CHANGE: A STUDY IN THE HISTORY
OF GEOGRAPHY IN THE UNITED STATES, 1892–1925

The history of geography in the United States lends itself to dissection by way of the imploded Kuhnian concept paradigm. The writer has elsewhere elaborated a history of the paradigm in United States geography,¹ tentatively characterized in the following manner... prior to 1859, “teleological theodicy”; 1859–1892, “Darwinian natural science”; 1892–1925, “physiography and causation”; 1925–1957, “field and region”; 1957–present, “eclectic pluralism”. It is the third of these postulated modes which is the subject of this essay.

In 1892 the Columbian Exposition was opened, and the first International Geographical Congress in the United States (funded by the National Geographic Society) was held on Exposition grounds the following year. The first doctorate in the history of American geography was awarded in 1893² and economic geography was established at the Wharton School, University of Pennsylvania. Geography was established at the University of Chicago in the same year, (William Rainey Harper, first president of that university, had unsuccessfully, attempted to persuade Halford J. Mackinder to join his faculty): geography was on the brink of becoming a “profession”. Perhaps of largest significance however, was the establishment of the “Committee of Ten”, presided over by Harvard President Charles Eliot.³ The report

¹ Address given before the University of Minnesota Geography Department, May 18, 1984.

² Emory R. Johnson, *Inland Waterways: Their Relation to Transportation* (University of Pennsylvania, 1893).

³ Membership of the sub-committee on geography included: Thomas C. Chamberlin (University of Chicago), George L. Collie (Beloit College, Wisconsin), W. M. Davis (Harvard University), Delwyn A. Hamlin (Rice Training School, Boston), Mark W. Harrington (Weather Bureau, Washington, D. C.), Edwin J. Houston (Central High School, Philadelphia), Charles F. King (Dearborn School, Boston), Francis W. Parker (Principal, Cook County National School, Englewood, Illinois), G. M. Philips (Principal, State Normal School, West Chester, Pennsylvania), Isreal C. Russell (University of Michigan).

of the meeting, published in May 1893,⁴ established a schedule for geography and geographer in the ten year pre-university schooling. Physiography emerged dominant. This physiography could embrace Darwinian natural science, was the end product of the geologic skein, and was advanced by Davis in the form of the geographical cycle (the first United States geographic analogue model processional to Darwin's work) as the foundation of discipline. In these nascent nineties Davis tutored a number of students on the Harvard Yard who were to become moving forces in the geographic enterprise as for example... Sumner W. Cushing (Salem State Normal School), Richard E. Dodge (Teachers College, Columbia University), Herbert E. Gregory (Yale University), Mark S. W. Jefferson (Michigan State Normal College), Curtis F. Marbut (University of Missouri), and Robert DeC. Ward who was retained on the Harvard faculty.

Physiography stumbled along in the grade-schools, but was already beginning to lose favor with both students and teachers. Teachers, superintendents and book companies began to urge a more human form of geography consequent to which further committee work began to revise the posture of the Committee of Ten. Davis had by 1902, urged "the study of the relation of the earth and its inhabitants... It is the relationship between the physical environment and the envired organism, between physiography and ontography (to coin a word) that constitutes the essential principles of geography today."⁵

In a letter to Bowman, Davis urged.⁶ "The chief thing I wish to emphasize is that you should develop geography proper, physiography and ontography properly combined, and not simply physiography (as I have done too much)." Later J. Russell Smith observed:⁷ "no one had more to do with the un-Davising of geography than did Davis himself. He went up and down the land between 1899 and 1903 laying out the point that geography was a relationship between the earth and the organisms that lived upon it." This other half of the subject which Davis called ontography was apparently minted by Davis in 1902, though ontogeny (the history or science of the development of the individual being) and ontology (the science or study of being) preceded Davis's ontography. Davis was legitimately concerned to exercise the geographic faculties of the geographers gathered into the Association of American Geographers: in 1906 he wrote,⁸

as an experiment, supposed we classify by general subjects, and rotate order of subjects year by year e.g., Physiography.... Ontography... Technical... Educational. I would not

⁴ *United States Bureau of Education: Report of the Committee on Secondary School Studies*. Washington, Government Printing Office, 1893.

⁵ William Morris Davis, "Systematic Geography", *Proceedings of the American Philosophical Society*, 1902, pp. 235-259.

⁶ William Morris Davis to Isaiah Bowman, March 18, 1906.

⁷ J. Russell Smith to Geoffrey J. Martin, June, 1962 (day not given).

⁸ William Morris Davis to Albert P. Brigham, December 1, 1906.

announce the above headings—especially Ontography, for I am not sure it is acceptable to members in general. In order not to be too physiographic, suppose we begin with ontography this year.

One year later he urged Brigham to⁹ “address personal letters to such members as you think would represent unusual topics, and thus try to get their topics represented e.g. Historico-geography, commercial geography, anthropogeography, climatology etc.” And days later, he wrote to Brigham¹⁰ “my own topic for a roundtable would be Terminology and definition of geography and its subdivisions.” Some of Davis’s students were to infuse ontography with meaning, they included more particularly R. LeMoyne Barrett, Isaiah Bowman, Walter S. Tower, Ellsworth Huntington and Vilhjalmur Stefansson. Earlier students of Davis, e.g. Jefferson, and some who had not studied with Davis e.g. Ellen Semple, J. Russell Smith and Ray H. Whitbeck also contributed to this “other half of the subject”. The inspiration for ontography was the principle of causation. Here was an alternative to the concept of a Designed Earth instituted by the Creator for Man. The Darwinian principles of evolution and selection were embraced, hierarchies of racial competence could be explained, indeed the entire gamut of human performance could be comprehended by reference to environmental authority. And geographers were in the business of parsing the environmental self and its mechanisms; mechanisms of organism response were not studied, thus excluding biologists, zoologists *et. al.* though performance of organisms was assessed, impressionistically, by Semple, and measured statistically by Huntington. It is too easy and simplistic to dismiss these undertakings collectively as determinism, for there were specialized variants thereof, as for example “climatic determinism” (causative) and the role of physiographic locale (determinative). The concept served as an intellectual construct for geographers in the first quarter of the twentieth century. The dimensions of the fundament had been studied and appreciated, if not fathomed and plumbed. But now, man as a reservoir of indetermination had been made part of the synthesis. The large question as to whether driving factors in the history of life have been autogenetic, i.e., internal to the organisms, or ectogenetic, i.e., external to them, and therefore environmental, was posed. Morgan was busy trying to unravel the mysteries of genetics with his fruit flies ensconced in their numerous glass jars in the laboratory. And he discovered mutation. But unlimited quantities of the past collided with an emergence of the endlessly new. And geographers withdrew from commitment to the necessity of parsing the genesis of ability, i.e., biological or environmental. For the most part, the geographic academy accepted man as an ape, with many extra tricks to his credit to be sure. Recognized was the truth that life can only be understood backward, but that it must be lived forward. The whole became

⁹ William Morris Davis to Albert P. Brigham, January 2, 1907.

¹⁰ William Morris Davis to Albert P. Brigham, January 15, 1907.

difficult—perhaps too difficult. Failure to formulate satisfactory methods of pursuing the nature of the determination of organism by environment, coupled with inadequate statistical means to measure the supposed extent of such determination, were perhaps reason for the passing of this genre of thought. When Ellen Semple wrote (1911) of man who lived along the coast “who had vigorous development of chest and arm to handle his paddle”, she was applauded for acuity of vision; posthumously this same observation won for her severe criticism. Brigham, too, was to receive criticism. Yet when Ellsworth Huntington measured the variables involved, and evolved from climatic determinism a carefully wrought physiological climatology, geographers began to shrink from his findings, namely that cabbages grow larger under high tension wires, bank deposits and qualities of civilization were higher in the path of the variable cyclonic westerlies, the optimum climates for physical and intellectual labor were found in the temperate latitudes, and civilization itself was higher in the middle latitudes than elsewhere. Differences in matters as daily economic performance, number of non fiction books borrowed from libraries, inventions, and death rates, all pointed to optima in temperatures, barometric pressure and variability. Once climates were ranked in energizing capacity, Caucasoid peoples from the middle to northing latitudes were considered to be the most intelligent and productive humans available to society. Restriction leagues and immigration policies were developed with this in mind. Certainly at the extremes environmental determinist doctrine spoke sooth, “one can’t grow pineapples at the North Pole”. The environment does set limits. Yet overstatement of determinism could lead to extreme and indefensible positions.

Meanwhile geography in America was enjoying halcyon years. Epic works of causal persuasion as Brigham’s *Geographic Influences in American History* (1903), Semple’s *American History and Its Geographic Conditions*¹¹ (1903) and *Influences of Geographic Environment* (1911), and Huntington’s *The Pulse of Asia* (1907), and *Civilization and Climate*¹² (1915), bestrode the groves of academe. Man the actor, playing out the drama of life on the environmental platform, was a disciplinary spectacle of particular interest to the historian. In 1914 George B. Roorbach¹³ was able to conclude from a symposium

¹¹ This book was perhaps less feted than *Influences of Geographic Environment* (1911). However it did sell c. 25,000 copies 1903–1913. (Ellen C. Semple to Dr. Howard, September 9, 1913), and “was adopted for the ships libraries in the U.S. Navy. It is now used as a textbook in various American Universities, both in departments of history and geography, and it has been adopted by the Education Commissions of a dozen or more states in the required reading of the public school teachers.” (Ellen C. Semple to J. Scott Keltie, October 30, 1912).

¹² Geoffrey J. Martin, “Civilization and Climate Revisited”, *Geography and Map Division, Special Libraries Association Bulletin*, No. 96, (June, 1974), pp. 10–17.

¹³ George B. Roorbach, “The Trend of Modern Geography”, *Bulletin of the American Geographical Society*, Vol. 46, 1914, pp. 801–816.

(conducted by correspondence), that "there is nearly unanimous agreement as to what geography is"... "geography concerns itself with the study of the relationship between earth and life, particularly human life". Roorbach noted "almost general agreement that the aim of geographic work of whatever kind is to establish the facts of, and deduce the principles underlying, this relationship between the physical earth and its inhabiting organisms." Yet within the precincts of the geographical community some doubt concerning the legitimacy of the causal posture was beginning to emerge.

Disciplinarily two other developments were arising as alternate lines of intellectual development. Physiographic provinces, as a progenitor to region, was an immediate derivative from Davisian physiography; it was exemplified in Bowman's *Forest Physiography* (1911) and Joerg's "The Subdivision of North America into Physiographic Regions".¹⁴ In 1915 the Association of American Geographers established a Committee on Physiographic Provinces whose task was the "delimitation of physiographic provinces" (Nevin M. Fenneman, chairman, Marius R. Campbell, Douglas W. Johnson, Francois E. Matthes, and Eliot Blackwelder¹⁵). This thrust unfolded itself as the origin of a number of regional investigations. The other disciplinary thrust functioning as alternative to the causal notion was the emergence of an economic geography. This derived from the work of Emory R. Johnson at the Wharton School, University of Pennsylvania. In the years 1899–1901, he, and his assistant, J. Russell Smith, made a cost-benefit study of the alternate routes for a canal across the isthmus of Central America.¹⁶ A route through Nicaragua was favored, but Johnson and Smith opted for a route through Panama. The exercise brought attention to the Wharton School and the succession of geographers passing through this molding department, including J. Russell Smith, J. Paul Goode, and Walter S. Tower. This practical type of study had a wide appeal, and such courses quickly found their way into college and university curricula. Initially the spread of this work was facilitated by use of George G. Chisholm's *Handbook of Commercial Geography*, (1889; much reprinted and revised) and further facilitated by the publication of Cyrus C. Adams's *Commercial Geography* (1901) and J. Russell Smith's *Industrial and Commercial Geography* of 1913. Curiously those institutions which had developed an offering in commercial, industrial or economic geography (as it was variously called) seemed to have been able to develop more substantial programs than those institutions advocating the Davisian model. In any case both of these intellectual postures provided alternatives to a geography of determinism (though causation could find application

¹⁴ *Annals of the Association of American Geographers*, Vol. 4, 1914, pp. 55–84.

¹⁵ Nevin M. Fenneman, "Physiographic Divisions of the United States", *Annals of the Association of American Geographers*, Vol. 6, 1916, pp. 19–98.

¹⁶ *Report of the Isthmian Canal Commission, 1899–1901*. (Washington: Government Printing Office, 1904). See the Archives of the University of Pennsylvania for details concerning Johnson's work on the proposed canal.

within the physiographic region or within the range of economic geography). The development of economic geography seems to have been a logical reaction to a people becoming ever more urban and increasingly reliant upon public transportation and employ in manufacturing. The wilderness-conquest experience of the pioneer had been reduced, and the urban-economic experience was becoming the norm. The dirigible, car, train, central heating, and other indices of technology were providing man with a hitherto unknown dominion over his circumstances. The human condition seemed much less determined than had previously been thought.

What was indigenous was supplemented by thought imported more particularly from Germany, France, and Britain. American geographers who studied in Germany in this paradigm period included Ellen C. Semple (Friedrich Ratzel, 1892–1893, and 1895), Charles T. McFarlane (Albrecht Penck, 1898), J. Russell Smith (Friedrich Ratzel, 1901–2), Wellington D. Jones (Alfred Hettner, 1913), Eugene Van Cleef (Joseph Partsch, 1913–1914), and S. Van Valkenburg (Albrecht Penck, 1915–1916).¹⁷ Robert DeCourcy Ward and Carl Sauer both spent some years of their youth in Germany, W. M. Davis was visiting professor in the University of Berlin during 1908–1909. In turn Martha Krug Genthe, first doctoral student of Hettner came to teach in Hartford, Connecticut; Albrecht Penck was visiting professor at Columbia University, 1908–1909 (his son, Walther, studied geography at Yale University during those months) and Eugen Oberhummer and Eduard Brückner (University of Vienna) made visits to the United States; the former lectured for a semester at Columbia University, 1914–15. From the German publications of this period Ward's translation of Julius von Hann, *Handbook of Climatology* (1903), and Semple's rendering of Ratzel, *Influences of Geographic Environment* (1911) are among the best known. And Davis led his Liverpool-Rome Geographical Pilgrimage in 1911, and the AGS Trans-Continental Excursion in 1912. Here were two extended excursions, lasting a total of more than 17 weeks, in which geographers of many nations including the United States, Germany, France and Britain were brought together in what were virtually travelling seminars. German geography exerted two influences on United States geographical thinking. Firstly there was a strong regional component to the offering, and secondly there was a strong anti-Davsonian thrust to his work. Pursuant to Davis's lectures in Berlin both Hettner and Passarge entered into opposition to the "Davische System",¹⁸ additionally Walther Penck opposed Davsonian thought with much intensity. This opposition

¹⁷ Other American academics who were to contribute to geography, who studied in Germany prior to 1892, included Cleveland Abbé, Sr., Richard T. Ely, William H. Hobbs, Lindley M. Keasbey, Charles T. McFarlane, Charles A. McMurry, Francis W. Parker, Rollin D. Salisbury, Edward Van D. Robinson, and Edward L. Stevenson.

¹⁸ *The History of the Study of Landforms or the Development of Geomorphology*. Volume Two: *The Life and Work of William Morris Davis*. By Richard J. Chorley, Robert P. Beckinsale and Antony J. Dunn: 1973. See especially chapters 22 and 23.

culminated in *Die Morphologische Analyze*,¹⁹ written by Walther and edited by Penck père. Correspondence reveals that Walther was bitter concerning "allied atrocities", a feeling doubtless exacerbated when his father, Albrecht, was confined to London for several weeks early in 1915 (entertained by an embarrassed Sir John Scott Keltie of the Royal Geographical Society) and allowed to depart only pursuant to the Falkland Islands episode and destruction of the Emden.²⁰ In sum German geographical thinking was not supportive of Davis or his elaboration of the causal posture. And the criticism was emerging at a time when Davis had departed the Harvard Yard and in consequence was not producing further student disciples... while other individuals and institutions were accomplishing this (most notably the departments of geography at the Wharton School of Finance, University of Pennsylvania, and the University of Chicago).

French geography, perhaps inspired by the thought of Bergson and Descartes,²¹ and tutored if not molded by the experienced vision of La Blache, offered the vision of a possibilism. Again this was a geography not supportive of the causal mechanism notwithstanding Davis's visiting professorship at the Sorbonne, Paris, 1911-1912. La Blache's work was known and appreciated in North America but it was probably Brunhes' *La Géographie Humaine* which attracted most attention at the university level; it was on the reading lists of numerous institutions. Bowman later wrote of the book, it "was one of my greatest discoveries and I used the book at Yale University for years... Since then it has profoundly influenced American geography."²² At the University of Wisconsin in 1914 Ray H. Whitbeck informed Lawrence Martin he would like to translate Brunhes' book. Martin wrote to Brunhes about the matter, but when Brunhes agreed to a translation Whitbeck had committed himself to other tasks. Then Martin learned of Bowman's interest in a translation. Martin wrote to Bowman,²³ and Bowman arranged matters with Richard E. Dodge (geography editor for Rand McNally Company), then had his friend Irville Charles LeCompte,

¹⁹ Geoffrey J. Martin, "A Fragment on the Penck(s)-Davis Conflict", *Special Libraries Association, Geography and Map Division Bulletin* 98, pp. 11-27. Incidentally, this book was widely read and discussed by graduate students and faculty in American university departments of geology and geography. Consequently in 1936 O. D. von Engelmann initiated an informal group translation, which, it was anticipated, would be mimeographed or perhaps "published by Edwards Brothers, Ann Arbor, Michigan". Those who participated in this undertaking included Laurence M. Gould, George D. Hubbard, Kirk Bryan, and John L. Rich. See: O. D. von Engelmann to Laurence M. Gould, March 8, 1937, and George D. Hubbard to Carl O. Sauer, May 7, 1936.

²⁰ J. Scott Keltie to William Morris Davis, 15 March, 1915.

²¹ Robert P. Beckinsale, "W. M. Davis and American Geography: 1880-1934", p. 107, in *The Origins of Academic Geography in the United States*, ed. Brian Blouet, 1981.

²² Isaiah Bowman to Madame R. Delamarre, August 27, 1930.

²³ Lawrence Martin to Isaiah Bowman, March 16, 1914.

an accomplished French *littérateur* and Yale colleague begin the translation. By November 3, 1914 Bowman could write:²⁴

We are now in the midst of the correction of the translation and will continue to work on it through the winter. It is a huge task. We are altering the book considerably to meet American needs and improving it to such an extent that we think the author will probably want to make a translation of our translation. We expect to have it finished by the end of the college year.

The work was interrupted by the reduction of the Yale Geography Department, Bowman's assumption of the Directorate of the American Geographical Society (July 1, 1915), activities associated with the war, and the fact that LeCompte left Yale for a professorship of Romance languages at the University of Minnesota (1917). Additionally, Richard Dodge, whose geography program at Teachers College, Columbia University, was faltering, was shortly to retire from the post into farming in Washington, Connecticut: he was very slow to expedite passage of the translation which became a matter of very considerable vexation to Bowman. When chided Dodge could only claim eye strain and urged Bowman, "Don't grow old. It is a nuisance."²⁵ The published translation of Brunhes' appeared in 1920. When *La Géographie de L'Histoire* by Brunhes and Camille Vallaux came to Dodge, he wrote:²⁶

What a stimulating and original man he [Brunhes] is. While the rest of us are mostly milling round in the same old corral he goes out and reorganizes the whole science in an epoch making way... Brunhes is the master in the field and all must follow. The new book is as masterful as the *Human Geography* and should have wide usage.

These two books much respected in United States academic circles, were followed in 1922 by Lucien Febvre's *La Terre et l'Évolution Humaine* (translated as *A Geographical Introduction to History*, 1925) and P. Vidal de la Blache's *Principes de Géographie Humaine* (translated as *Principles of Human Geography*, 1926). Both of these books could be found on graduate student reading lists in the United States into the 1960's.

From Britain came, more notably, region and regionalism in the work of Herbertson and Mackinder. Determinism had not been repudiated, but it was not the geography which came to represent Britain in America. It is a curiosity to recognize that Cambridge University considered Huntington for the chair in geography, 1907;²⁷ and of Oxford University, Semple could write:²⁸

I lectured on the principles of anthropo-geography at Oxford University throughout the summer term in August of last summer, and held a bi-weekly seminar. My audience was composed of two hundred students, many of them graduates. There was never an empty seat

²⁴ Isaiah Bowman to C. F. Newkirk, November 3, 1914.

²⁵ Richard E. Dodge to Isaiah Bowman, March 1915 (day not given).

²⁶ Richard E. Dodge to Isaiah Bowman, October 6, 1921.

²⁷ Scott Keltie to William Morris Davis, December 20, 1907.

²⁸ Ellen C. Semple to Dr. Howard, September 9, 1913. (This person might well have been A. D. Howard, Sunday Editor, New York Tribune.)

in the hall, and frequently no standing room, and when I left the students gave me an ovation. However, the lecture form of the average English University professor is so poor that the American finds it easy to make an impression by mere contrast.

Yet determinism was left in the United States without international support; even there it was subjected to criticism. Perhaps the leading skeptic of this posture was Mark Jefferson. Two examples of his opposition (revealed most frequently in correspondence) must here suffice. During the 1912 AGS Trans-Continental Excursion, he wrote to his wife:²⁹

Ruskin in *Modern Painters* has two chapters on "Mountain Splendor" and "The Mountain Gloom" and I made reference to the theme he then develops that man may lead a life of mean and sordid range of thought and feeling in the presence of the scenery that would ordinarily be called most inspiring. The traditional view is, of course, the opposite one, beauty of environment is supposed to have inspired Greek appreciation of scenery in general, despite the fact that five centuries of the same environment have not seemed to make any impression on the Turks.

Finally after much useless discussion I bethought me to ask them the name of some Spanish "master" (offhand of course), then a Dutch, a French, an Italian and then, wickedly, a Swiss "master," who should have been inspired by the most beautiful scenery in Europe! Then I had the prudence to change the subject... The geographic point of view still has much way to make.

On the occasion of his presidential address—"Some Considerations on the Geographical Provinces of the United States"—presented to the Association of American Geographers, he wrote:³⁰

Anthropogeography... It attempts to explain the character and habits of a people by their environment. This field has special perils. A great part of what has been written is vague and fanciful rather than cautious and well-based. If no other explanation of qualities is available one may always refer to the "climate".

Brigham had urged more care and precision in identifying and measuring influence in his AAG presidential address,³¹ and in his correspondence. Bowman, who at one time had shared rooms and classes with Huntington at Yale had increasingly distanced himself from the point of view in the second decade of this century, largely by embracing the regional viewpoint. By 1919 Bowman had repudiated the looser forms of determinism then rampant in American geography. Perhaps that was in part due to his affiliation with the Inquiry and American Commission to Negotiate Peace at Paris. Here were Titans changing the shapes and extent of nations. The power and influence of governments was so immediate, so direct, and so close to Bowman that the physical environment came to seem much more remote to him in the

²⁹ Mark S. W. Jefferson to Theodora Jefferson, September 5, 1912, (also: G. J. Martin, *Mark Jefferson: Geographer*, 1968, p. 140).

³⁰ *Annals of the Association of American Geographers*, Vol. 7, 1917, pp. 3-15.

³¹ "Problems of Geographic Influence", *Annals of the Association of American Geographers*, Vol. 5, 1915, pp. 3-25. Also published (with modifications) in *Science*, February 19, 1915, pp. 261-280.

rooms of the Quai D'Orsai than it had astride a mule in the Atacama. From Paris he wrote of Ellen Semple's work:³²

I thought very well of it at one time but as a matter of fact and speaking quite frankly, the Semple bubble—if I may so put it—is forever punctured so far as I am concerned. This is quite confidential. I do not believe in that type of geography. It is vague, generalized, and mostly wrong... my appreciation of Herbertson's work is increasing with every contact that I have with his ideas, and in just that proportion my appreciation of Miss Semple's work is diminishing...

And he wrote to his friend James Truslow Adams:³³

In 1905 I began to teach geography at Yale and there was a lot of determinism in it. I got steadily away from it. The closer to the facts I got the less importance I attached to geographical environment. The other side of the picture is that there are many authentic cases of geographical control... But that Society as a whole is guided predominantly by any one of these things is to me sheer rubbish. To me the evidence is overwhelming.

By the late teens there had developed a more sophisticated appreciation of the causative thesis. "Determinism" had given way to more conciliatory terms which included "control", "influence", "adjustment", and "geographic factor". The philosophical posture was to reason from the environment to the envired organism: recognized was the deficient absence of a measured reciprocity effective by the organism. And the thesis of determinism forbade both recognition of competition between organisms and the selective process. The deficiency had already been recognized elsewhere: Henry C. Cowles at the University of Chicago had developed plant ecology, from which it seems J. Paul Goode developed the notion of human ecology (1907),³⁴ which Harlan H. Barrows elaborated in "Geography as Human Ecology" (1922).³⁵ It is noteworthy that Barrows had revised the title of his noted course from "Influence of Geography on American History" (1904) to "Historical Geography of the United States" (1923).³⁶ The Ecological Society of America was founded in 1916 and included geographers on its roster. The anthropologists, including more notably perhaps Lowie and Wissler, began to question the intellectual bases of the deterministic posture.³⁷ Meanwhile the conservation movement considered reciprocity of environment and envired in its posture. The work of George Perkins Marsh was known but not widely read at this time: Gifford Pinchot, Charles E. Van Hise (President of the University of Wisconsin) and Theodore Roosevelt, each with a keen geographic interest,

³² Isaiah Bowman to Gladys Wrigley, March 15, 1919.

³³ Isaiah Bowman to James Truslow Adams, August 2, 1924.

³⁴ "A College Course in Ontography", *Annals of the Association of American Geographers*, Vol 1, 1911, p. 111.

³⁵ The address was given, Ann Arbor, Michigan, 1922. It was published in the *Annals of the Association of American Geographers*, Vol. 13, 1923, pp. 1-14.

³⁶ William A. Koelsch, *Lectures on the Historical Geography of the United States, 1933: Harlan H. Barrows*, 1962. Also, "Harlan H. Barrows, 1877-1960", by Charles C. Colby and Gilbert F. White, *Annals of the Association of American Geographers*, Vol. 51, 1961, pp. 395-400

³⁷ William W. Speth, *Historicist Anthropogeography: Environment and Culture in American Anthropological Thought from 1890 to 1950*. Ph. D. dissertation, University of Oregon, 1972.

had emerged to champion the cause of conservation (Roosevelt had been admitted to membership of the Association of American Geographers in 1915).³⁸ These stirrings were recognitions that environmentalism was in need of revision... that reciprocity twixt environment and organism was an indispensable attribute of meaningful thought. Also recognized was the fact that one cannot build discipline on the study of relationships.

The War gave a stimulus to economic geography and mineralogy, led to the employ of geographers in many agencies and bureaus of government, made demands on cartographers and encouraged regional investigation. This war-related activity by geographers reached its acme in the work of the Inquiry and American Commission to Negotiate Peace in Paris, 1918–1919. The experience helped skew the direction of United States geography, helped perhaps develop closer relationships between some United States geographers and British and French geographers; relationships with German geographers were impaired.

Yet new ideas were emerging. Ward demonstrated the meaning of applied geography in a series of remarkably detailed articles concerning weather and the war.³⁹ Whitbeck wrote of mental maps.⁴⁰ Goode wrestled with the problem of map projections. Political geography came of age with Bowman's *The New World* which experienced four revisions,⁴¹ (and was adopted in geography, history and political science courses) and Woodrow Wilson, who had learned to respect this variety of geography at the Paris Peace Conference, took membership in the American Geographical Society in 1921. What was later to be called military geography was given impetus by D. W. Johnson's *Battlefields of the World War, Western and Southern Fronts: A Study in Military Geography*, (1921). Studies in population and urban geography were becoming more frequent and more seriously considered. Oliver E. Baker was developing ideas concerning agricultural economics, and Curtis F. Marbut informally translated Konstantin D. Glinka on soil science from the German in 1914 (the translation was later published).⁴²

³⁸ Minutes of the Association of American Geographers. Deposited with the American Philosophical Society, Box I. For a list of Association holdings see: "Archives of the Association of American Geographers", *History of Geography Newsletter*, No. 2, December 1982, pp. 24–31.

³⁹ The Weather Factor in the Great War. A series of articles published in the *Journal of Geography* from February 1915 to April 1918.

⁴⁰ Ray Hughes Whitbeck, "The Country's Call for Geographers To-day and To-morrow", *School and Society*, Vol. IX, February 22, 1919.

⁴¹ *The New World: Problems in Political Geography*. First published in 1921, a supplement was added in 1923; revised in 1924, 1926 and 1928. The book was also published in Chinese, French and Braille editions.

⁴² Marbut translated *Die Typen der Bodenbildung* by K. D. Glinka (1914), in that same year. This unofficial translation was published as *The Great Soil Groups of the World and Their Development*, by Edwards Brothers, Ann Arbor, Michigan, 1927. See *Life and Work of C. F. Marbut*, a memorial volume published by Soil Science Society of America (successor to American Soil Survey Association).

It was in this context of intellectual growth that Rollin D. Salisbury's noted seminar at the University of Chicago was to play a significant role. Wellington D. Jones, with the approval of Salisbury, had worked with Bailey Willis in a field survey of Northern Patagonia, then studied with Hettner at Heidelberg (1913). Upon his return he presented a paper in the Salisbury seminar which appealed to Sauer. Sauer had commenced doctoral study at the University of Chicago in 1909 after transferring from geologic study at Northwestern University (which he felt emphasized petrography too much for his taste). He had an apparent preference for study at the University of Heidelberg with Alfred Hettner but circumstances had forbidden.⁴³ (To Whittlesey he later wrote:⁴⁴ "I began to browse on my own in libraries and discovered that there was another geography—in German literature... My aberration destroyed a part of Salisbury's confidence in me and saved me from being appointed to the staff at Chicago, I believe, for he had told me to look forward to such an event.") Sauer developed a propinquity with W. D. Jones (they corresponded intermittently until Jones died in 1957). In 1915 Jones and Sauer published "Outline for Field Work in Geography"⁴⁵ which was an outgrowth of seminar discussion.⁴⁶ This article inaugurated a geography notably devoid of the search for influence and offered an intellectual posture removed from the dominant mode. There followed by Sauer, "Proposal of an Agricultural Survey on a Geographic Basis"⁴⁷ (1917), "A Soil Classification for Michigan"⁴⁸ (1918), "Mapping the Utilization of the Land"⁴⁹ (1919) and "Geography as Regional Economics" a paper delivered at the Chicago meeting of the Association of American Geographers in December 1920.⁵⁰ In reply to a letter written to him about this paper by J. Russell Smith, Sauer replied:⁵¹

My main argument was that Geography is suffering from a confusion of purposes and I made the plea for a concentration of effort on something that lies central to the subject, has major significance, and may supply a definite focus. I also objected to the special pleading that is bound to come out of an interpretation of geography as the study of geographic influence. I proposed the study of areas in terms of their economic performance, with due emphasis on their opportunities, handicaps, and stage of development, but without

⁴³ Gottfried Pfeifer to Mrs. W. Hess, January 9, 1956.

⁴⁴ Carl O. Sauer to Derwent S. Whittlesey, March 23, 1929.

⁴⁵ *Bulletin of the American Geographical Society*, Vol. 47, (1915), pp. 520–526.

⁴⁶ Wellington D. Jones to Carl O. Sauer, December 22, 1939. This letter confirms presentation to the seminar; it also confirms the fact that there was not a senior author... the names Jones and Sauer were arranged alphabetically.

⁴⁷ Michigan Academy of Science, 19th Annual Report, 1917, pp. 79–86.

⁴⁸ Michigan Academy of Science, 20th Annual Report, 1918, pp. 83–91.

⁴⁹ *Geographical Review*, Vol. 8, 1919, pp. 47–54.

⁵⁰ Abstract published in *Annals of the Association of American Geographers*, Vol. 10, 1920, pp. 130–131.

⁵¹ Carl O. Sauer to J. Russell Smith, May 19, 1921.

any partiality to the consideration of physical factors. We can develop discipline for this type of work that will rid us of the odium of trying to make out a case for one set of influences.

Sauer later explained to William W. Speth:⁵²

My dissatisfaction with the environmentalist tenet came mainly from listening to Miss Semple and J. Paul Goode, both delightful persons, and hearing Barrows distinguish between geographic and non-geographic factors. That wasn't what I had come for to geography. In the years I worked in The Loop I read German geographers evenings who were doing what I wanted and when I came to Berkeley I put it together as the Morphology of Landscape.

Yet it is possible that Sauer took more from Chicago thinking than he realized. From Salisbury he had learned to appreciate the role of time as an indispensable attribute of physiographic reality. This was contraposed to the theoretical properties of the Davisian model of the cycle from which Sauer was to distance himself. From Barrows he took an existing, perhaps nativistic, respect for ecology. Sauer's programmatic writings, accumulating as an alternate viewpoint to the causal notion, continued with "The Problem of Land Classification"⁵³ (1921) and "The Survey Method in Geography and its Objectives"⁵⁴ (1924) as prelude to "The Morphology of Landscape"⁵⁵ (1925). The latter (written at Berkeley) added the dimension, time, to geography and transformed a pragmatic regional economics into an historicism of landscape morphology.⁵⁶ Later he was to reject such writing as "a habit-forming drug",⁵⁷ feeling perhaps that any restrictive definition hampered original work. John B. Leighly has written⁵⁸ "Sauer soon saw his methodological writing from the twenties as negligible and embarrassing, and eventually publically disavowed them." Yet the publication had an impact later characterized by Preston E. James:⁵⁹

Sauer's purpose was to make a clean break with the traditional geography inherited from the period before World War I... Sauer's paper was like the clear notes of a bugle call to the younger members of the profession... by 1925 there was enough skepticism concerning the content or method they had been taught to make the younger generation ready to accept a change of paradigm.

In this period, 1892–1925, geography in the United States, as institution and learning, underwent remarkable change. It was, after all, as Sauer has

⁵² Carl O. Sauer to William W. Speth, March 3, 1972.

⁵³ *Annals of the Association of American Geographers*, Vol. 11, 1921, pp. 3–16.

⁵⁴ *Annals of the Association of American Geographers*, Vol. 14, 1924, pp. 17–33.

⁵⁵ *Publications in Geography*; Berkeley, University of California, Vol. 2, pp. 19–53.

⁵⁶ "The Fourth Dimension of Geography", p. 191, *Annals of the Association of American Geographers*, Vol. 64, 1974, pp. 189–195.

⁵⁷ Carl O. Sauer to Joseph E. Spencer, December 8, 1934.

⁵⁸ John B. Leighly to Richard Hartshorne, November 6, 1975.

⁵⁹ Preston E. James, *All Possible Worlds: A History of Geographical Ideas*, 1972, p. 401.

written, "a springtime, the only good one we've had in this country."⁶⁰ There were rare stimuli operating at this time: imperialism manifested itself globally, exploration of the polar world excited the public imagination, wars both stimulated and required geographical researches, and geographical societies were being formed in the larger cities. Initially geography was natural science, a physiography deriving from the last epoch of geologic history. It underwent transformation as though shifted from the fundament to the play of the fundament upon the organism, then to the play of a spatial behavior of the collective organism through time, the subject becoming moored largely in the social sciences.

Gradually, geography found a place for itself in the school system and in the colleges and universities: departments were initiated at Berkeley, California and Teachers College, Columbia University, in 1898. The concepts of discipline and profession began to emerge. Both came at a time when Davis was in his mid-forties, newly established, and awake to opportunity. He was both authoritarian and authoritative, had a remarkable vision of the field, was widely respected as a scientist, and was affiliated with one of the premier universities in the country. He helped organize the profession by founding groups (most notably the Association of American Geographers, 1904), supporting journals, organizing field trips, and writing droves of letters to encourage and direct the labor of many individuals. His own graduate student following, many of whom remained professionally active, was large indeed. He was in the remarkable position of being able to supervise the evolution of his own geographic scheme. Much of the geographical activity of the country was then in the East. With the retirement of Davis from Harvard and academic life in 1912 his professional and managerial (though not intellectual) influence began to pass. Departmental geography was effectively terminated at Yale University in 1915 and Richard Dodge retired both himself and his program at Teachers College, Columbia University, in 1916. These were serious losses to Davis who had been able to arrange and foster programs, lecture series, visiting professorships, and to win the attention of University presidents elsewhere by cooperation within the three institutions. Davis, too, was perplexed and perhaps disappointed concerning new developments in geography. He wrote of consolation in being absent from a meeting of the Association of American Geographers (1922) because he noted "how largely the program was directed to economics; geographical economics if you like;... the papers seemed to me... like that one of [W. D.] Jones a year ago... which he said... would have been given unchanged if he had been addressing an audience of economists."⁶¹ He recommended "an inquiry as to what values should be included and how far they shd be pursued...

⁶⁰ Carl O. Sauer to Leonard S. Wilson, April 6, 1948.

⁶¹ William Morris Davis to Isatah Bowman, May 2, 1922.

I have long wished the Association at least might devote more time to considering what they are trying to do... the members each seem to be occupied in their own specific studies..."⁶² Written in 1922, this letter is one of several by Davis extant, revealing the two geographies which had begun to co-exist.

All of this came at a time when geography was flourishing at the Universities of Chicago, Michigan, Nebraska, and Wisconsin, and a number of other institutions in the Mid-West. The population was moving west. A younger generation of professional geographers had here emerged from university departments with a different geographical viewpoint. They came together in field conferences and began to assume membership and positions of authority in the Association of American Geographers.⁶³ In 1922 Richard E. Dodge was replaced as secretary of the Association by Charles C. Colby, an act which initiated the "Mid-West take-over" (as the phenomenon has been termed). A new viewpoint, initially advocated by Jones and Sauer, then adumbrated by Sauer, inspired a new geography by this younger group who rested the locus of their field from the older established Davis-inspired geographers. This new group devoid of the presence of Sauer after 1923 (the year in which he departed the University of Michigan, and assumed his post at Berkeley, California) searched for a new formulation of the field, and developed its own program of action. In this undertaking Sauer's publications and correspondence were to play a significant role. New geography programs emerged and departmental binomialism (geology and geography) was in retreat. Institutions of the Mid-West seemed more ready to accept the newly emerging field, geography, than the older established institutions of the East which had been able to accept it viewed as an extension of geology. Additionally there were a number of presidents of Mid-Western institutions of higher education who were keenly interested in the geographic undertaking. Yet a leader of Davis's drive, organizational ability, and determination did not emerge among this group. Perhaps creative, intellectual energies were given freer reign, but a new intellectual synthesis did not readily emerge to replace the causal model.

Edward L. Ullman wrote of the post 1925 period, "worse than determinism is nihilism and that's what resulted."⁶⁴ Sauer referred to it as a period of "great retreat". "Since the old days of physiography, I think that the geographers have lacked foci of observation."⁶⁵ The Wisconsin geographers felt it necessary to render a definition of the field in the form of a "working

⁶² *Ibidem*. Davis frequently used a simplified spelling; hence shd (should).

⁶³ Preston E. James and Cotton Mather, "The Role of Periodic Field Conferences in the Development of Geographical Ideas in the United States", *The Geographical Review*, Vol. 67, No. 4, October 1977, pp. 446-461.

⁶⁴ Edward L. Ullman to John K. Wright, March 29, 1961.

⁶⁵ Carl O. Sauer to Preston E. James, March 16, 1940.

creed".⁶⁶ Almon E. Parkins sought definition *via* his questionnaire⁶⁷ and Bowman felt obliged to write *Geography in Relation to the Social Sciences*. From this complexity of intellection came growth. The price was the perturbation of the normal mode of inquiry and the establishment of another "new geography".

⁶⁶ University of Wisconsin Memorandum, undated, but probably winter, 1930–1931.

⁶⁷ "The Geography of American Geographers", *Journal of Geography*, 33, (1934), pp. 221–230.