COMING FULL CIRCLE: PHYSICAL GEOGRAPHY IN THE TWENTIETH CENTURY

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ABSTRACT. The role of physical geography (and its practitioners) in the affairs of the Association of American Geographers and in the development of American geography has been varied in both substance and influence during the past seventy-five years. Physical geography was at its strongest in the Association's first decade and has recently experienced a resurgence. American physical geographers have tended to be adherents of the so-called "man-land" tradition in geographical teaching and research, which position is supported herein: firstly, by a review and perspective of physical geography during this century; secondly, through an exposition of some geographical opportunities for the future; thirdly, by discussion of the breadth vs. depth question in geographic education; and, fourthly, by concluding comments on this century's closing circle of events past, present, and future in American geography.

I believe it appropriate to preface this address with some remarks regarding how I came to select tonight's subject. Upon finding myself elected Vice President of this organization, old

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1 It is traditional, I believe, that most Presidential Addresses have been subject to considerable re-writing and/or editing in the period between delivery and publication. This not only allows the writer to lay on a patina of erudition, but also provides an escape mechanism whereby such scholarly evils as use of vernacular and personal opinion may be excised. This undoubtedly leads to more learned articles; on the other hand, much of the flavor of the original delivery is lost. Because it was my fate to speak at the first AAG banquet in many years, an occasion abundant in nostalgia and honored by the longest head table in Association history, I have elected to hold this manuscript as close to friends and casual acquaintances alike developed a sudden and rather persistent interest in the topic, or at least, the direction of my Presidential Address. I had no idea that most members cared; it has been my observation that an indecent number of them stay away from such occasions and, of those who elect to attend plenary sessions and/or banquets of this sort, more than a few do so only out of a sense of professional duty.

As time passed, I found the interest to be real enough. It came from two directions. Most human geographers seemed to believe that an illustrated lecture dealing with my research in alpine environments would serve nicely. There the original as possible. Perhaps, then, some of the flavor of my part in those activities will be retained. The only changes are the addition of footnotes, elimination of the usual prefatory jokes and asides, and the inclusion of four pages of typed text which were held back in recognition of the post-banquet span of attention.
is, after all, much to be said for attractively presented slides in the somnolent post-banquet hour. Physical geographers on the other hand, were, to the person, vehement in their demand that I should address broader questions of geography, especially as they related to the various aspirations and tribulations of physical geography. The former obviously provided the less demanding course; the latter promised hard work and the label of impertinence that a field-oriented geographer dare dabble in issues of methodology and philosophy.

Given the pressure from my physical geography colleagues, not inconsiderable homework, and because it is after all an anniversary occasion, I finally opted for an old-fashioned, sermonizing perspective. Besides, bluntly stated, it is high time that a physical geographer should again take possession of the pulpit. Not many have in the past three decades, and when they did, only Warren Thornthwaite saw fit to preach directly, rather than by example, as did Leighly, Borchart, Mackay, and Hare. Indeed, Hare prefaced his remarks with the comment:

_Years ago I resolved two things: that I would never write a methodological address, on the grounds that such addresses make young workers overwatchful; and secondly, that I would plan my work so as to avoid being quoted in other peoples' methodological addresses._

That statement, of course, has of this moment been put to the lie.

In any event, and proceeding to the substance of my address, this paper is intended essentially as an ecumenical exercise. It preaches the intellectual and material profits to be found in resolution of geography's so-called human-physical dichotomy. It hopefully accomplishes its objectives in four steps: Firstly, by a review and perspective of physical geography during this century; secondly, through an exposition of some geographical opportunities for the future; thirdly, by discussion of the breadth vs. depth question in geographic education; and, fourthly, some concluding comments on this century's closing circle of events past, present, and future in American geography.

Before addressing these issues, however, as a physical geographer and on behalf of my colleagues in that subdiscipline, please permit me the luxury of one outburst, especially because it is triggered by an exercise of these celebrations which John Hudson has described as "a sort of poor man's centennial"... but a time when "American Geography may be ready for a pause." My pique is focused specifically on the Special Issue of the _Annals_ that those words help introduce: "Seventy-five years of American Geography."

It is a fascinating document, capable of entrancing and offending on the same page. It will undoubtedly become required reading in every course on geographic thought; I will certainly use it thusly. Here is an anniversary that preens on the old-school ties of Wisconsin, Berkeley, Chicago, and Washington; an _Annals_ number that exposes the innermost volunteered thoughts of many colleagues who participated in conceptual, methodological, and scholarly revolutions of one sort or another; an admittedly fascinating potpourri of reminiscences, old-boy networks, name dropping, battles won and lost, and sincerely uttered outbursts of joy and/or petulance. It is an irresistible 75th Anniversary piece of mental memorabilia.

But! But... not one article focused on physical geography, its roots, its evolution, its practitioners. Where is the Thornthwaite connection, the legacy of Kirk Bryan, the conflicting paradigms of W. M. Davis and G. K. Gilbert, the coastal studies, glacier studies, Arthur Strahler and Richard Russell and Gordon Wolman?

How is it that our own scholarly journal not only does not recognize some 36 percent of the members of this Association, but also that same journal is seldom the venue selected by those members to display their wares? Why is a subdiscipline ignored which in 1977–78 was responsible for teaching 42 percent of all students

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3 Hare, op. cit., p. 459.


enrolled in geography courses in the United States, which accounts for 46 percent of introductory course enrollments, and thus incidentally bankrolls no small number of other academic activities in both human and physical geography. In short, are we to believe that human geographers are writing a revisionist history of American Geography, one in which physical geography, like some politician fallen from favor, is purged from the geographical record?

My intent is not to pick on the Annals; it simply provides a timely and convenient manifestation of the identity and communication problems that plague physical geography. The general situation is that some human geographers figuratively are writing a revisionist history of the field. Furthermore, physical geographers have been unwitting accomplices. The expurgation is not so much intentional; rather, it is largely an act of omission. The majority of physical geography in the United States, with the exception of classroom activities, simply does not appear in the usual geographical forums. For a large percentage of their publications, American physical geographers turn to specialized journals, other disciplines, or overseas geography serials. Is it any wonder then that many human geographers are not aware of activities in the physical and environmental sectors? The situation is exacerbated within physical geography itself, where research is further diffused across a broad spectrum of subspecialties and outlets. Indeed, there has been a fail-

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7 This point must be reiterated. Neither the Annals, nor its various editors are the target. Undoubtedly editors over the years have each lamented on either the dearth of physical geography manuscripts or the quality of those they receive. Unhappily, this leads to self-fulfilling prophecies whereby the publication of few physical geography articles leads to submission of fewer manuscripts, leading to . . . etc., etc. It is physical geography's Catch 22. The reality remains that the character of the Annals shades our perception of physical geography and vice versa. Because it is our Association's premier publication, it cannot escape attention when one considers the relative roles of physical geography and human geography.

8 The so-called dangers of pluralism affect all of geography, not just the physical component. They should not be discounted, but I personally find these dangers overstated. Pluralism need not lead to fragmentation if specialists operate within the geographic perspective. Mikesell's exposition of the "unity in our diversity" is eminently sensible (Marvin Mikesell, "Current Status" in the Special Opening Session of the Annual Meeting of the Association of American Geographers, Philadelphia, April 22, 1979). It is amazing, however, how geographers can find so many wheels within wheels. The pluralism issue appears even within subspecialties. See, for example, Karl W. Butzer, "Pluralism in Geomorphology," Proceedings, Association of American Geographers, Vol. 5 (1973), pp. 39–43.
was a rather special period in the advancement of science, one of those occasions when diverse pieces of conjecture, observation and analytical research were converging. Students of nature painted broad-brush landscapes in their search for elegant, generalizing models. There had already been clear affirmations of uniformitarian principles, as well as of important integrating concepts such as the glacier theory. Other models, derivative of the Darwinian legacy, were emerging on the physical geographical scene. The Davison geomorphic cycle and the Köppen climate classification were quintessential examples. These two models and their later counterparts in biogeography and soils geography (the succession-climax concept and the great soil groups classification) were to dominate American physical geography for the better part of this century. Indeed, the impact of these closed-system devices is far from dissipated today.

These “mechanistic, monistic interpretation(s),” as Leighly called them, were powerful, both because of their seductive simplicity and the intellectual influence of their proponents. It was no accident that the process-oriented methodologies of G. K. Gilbert and his disciples found a home in geology, not geography. In fact, the pushes and pulls of a half century of American geomorphology can be summed up institutionally: the Kirk Bryan Medal is given annually by the Geological Society of America.

In any event, geography had hardly become organized in the United States before new priorities and interests had begun to displace the dominance of physical geography. The rush to and from environmental determinism undoubtedly weakened the perceived role of physical geography, and under the guise of ecology, Harlan Barrows’ presidential erasure of half of the man-land equation could not have helped.

Mostly, however, it was a case of the action being elsewhere—that is, in human geography. Physical geography appears to have atrophied into a syndrome of descriptive and classifying activities . . . honorable pursuits, but hardly the full measure of problem-solving science.

An unhappy product of this situation was that fewer students were attracted to physical geography, producing a downward spiral in supply of physical geographers. This spiral was not arrested for four decades and impacted both geographic research and teaching. The effect on just introductory physical geography training was impressive, and I find it useful to quote an earlier statement of my own in this regard:

It is ironic that while the profession did little to encourage the training of physical geographers, and therefore lacked the professional personnel to man its physical geography courses, other geographic specialists found themselves impressed to duty and unable to devote full attention to their own interests. Instruction was bound to suffer and did. There is no reason that a competent geographer should not be able to treat natural landscape in the context of a general geography course—not if he or she has been properly trained. But there is a snowballing effect whereby non-physical geographers eventually end up teaching non-physical geographers to teach physical geography.

If the picture was depressing, the times were not without redeeming qualities. Some physical geographers, such as C. W. Thornthwaite and R. J. Russell, marched to a different drummer, and our Association honored as Presidents such major scholar-leaders as C. F. Brooks, H. H. Bennett, and Francois Matheu, although it was clear that they and their intellectual descendants were out of the then mainstream of American geography.

The low ebb of physical geography probably occurred by the mid-1950s, moving John Leighly to his famous title question, “What has happened to physical geography?” He, and many others, attempted to answer the question, and there is a fairly large literature on the subject. For our purposes, it is sufficient to realize sequently, that climatology, biogeography, and physics would be dropped from the discipline.

10 Harlan H. Barrows, “Geography as Human Ecology,” Annals, Vol. 14 (1924), pp. 1–16. This article must surely be the most cited of all AAG Presidential Addresses. By using human ecology as a unifying theme, Barrows hoped to distinguish geography from other disciplines. He saw humans operating against a backdrop of so-called natural environment but he felt geographers need only describe that environment and not study it in explanatory terms. He advocated, consequently, that climatology, biogeography, and physical geography be dropped from the discipline.
12 Leighly, op. cit., p. 309.
13 A few examples which directly or indirectly address the question include: Edward A. Ackerman,
that changes were already occurring in the physical geography milieu as process-oriented, systematic methodologies reemerged. The work of Kenneth Hare, Gordon Wolman, Arthur Strahler, and David Miller exemplified that new orientation.14

The late 1950s and early 1960s were for physical geography, as for the rest of the discipline, a period of major change. The discovery of numbers and the "science" in social sci-

ence by our human geography colleagues has been much documented and debated. Physical geographers came along for the ride, and profitably. In fact, we owe a debt to the so-called quantitative geographers; they helped re-legitimize our subfield. If they have not always been the physical geographer's partner in research, they were often early allies in the reemphasis of upper level training and expansion of physical geography programs.

Of course, it is a small conceit to believe that much physical geography of the 1950s was already grounded in mathematics and science, but there were not many practitioners to make it that evident. Only a few physical geography graduate students and new Ph.D.s were coming out of the academic woodwork then. I remember how, at meetings, we would meet and greet each other as fellow endangered species, like whooping crane offspring who could hardly believe their eyes that similar exotics existed. In the midst of this, Warren Thornthwaite reinforced our belief that "The Task Ahead" required rigorous attention to process and understanding of environmental systems.15 Considering that most persons attending the East Lansing banquet (mostly human geographers) claimed to have been bored and/or unable to understand his address, it is worth noting that eighteen subsequent years of American physical geography has followed the essential spirit and formula of Thornthwaite's mandate.

Indeed, physical geography has been much rejuvenated during the '60s and '70s. There are many more practitioners, employment opportunities have been good, basic and applied research have thrived, and the relative role of the subdiscipline has increased within the larger context of geography. Specialization of research has been much evident in climatology, biogeography, and a renewed geomorphology, but there also has been an increasing concomitant interest in resource-environment issues. But once bitten, twice shy; most physical geographers today keep one foot in the AAG and the other in a cognate scientific society. It is a reality of our professional lives.

Although the substance of this briefly outlined history is to be found in research publications, much of what is American geography


(and physical geography) has been expressed through the annual addresses of AAG Presidents, Honorary Presidents, and Past Presidents. Hardly a graduate student has escaped required reading of key presidential papers, such as those by Fenneman, Barrows, or Sauer. Some students have even been required to read every single speech, which—excepting, of course, the works of present company—must be the closest approximation we find to purgatory on this earth. Clearly, some Presidents have been more equal than others in the preparation of annual addresses.

There is, nevertheless, a perspective to be gained in a perusal of presidential papers. They tell so much of our discipline and our Association. Just a few presidential statistics provide a kind of capsule history of physical geography and its relationship to the AAG. For example, are you aware that in seventy-five years (and according to the Marcus specialty-identity index) thirty-five of our speech-giving Presidents have been practicing physical geographers and that a minimum forty-three of seventy-five trained as physical geographers. . . . or that one-eighth of our Presidents had their research roots anchored in alpine and polar environments?  

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17 In the course of homework for this address, with a group of graduate students at Arizona State University, I embarked upon a seminar into the history of physical geography in North America. Among other efforts, we set ourselves the task of reading each of the Presidential Addresses so that we might gain insights into the attitudes of our Association's leadership vis-à-vis physical geography. For their enthusiastic participation and stimulating interpretations, I would like to express my appreciation to: Harold Bulk, Kevin Flaherty, A. Donald Hyers, Gary Powell, Alex Packo, Keith Scoular, Georgina Shraeger, Peggy Winslow, Jeffrey Young, and Valerie Young. Collectors of geographical trivia may be interested to learn that our most successful evaluations were accomplished on a field weekend in Arizona's Oak Canyon/Sedona area. The eventual first-draft manuscript was written on extended field trips to the Palm Springs desert and Colorado's snowcapped San Juan Mountains, each an appropriate venue for the consideration of physical geography's history.

18 Someone else might interpret the data slightly differently, but I think my statistics generally stand up.

But we all know that statistics can lie. Physical geographers have not dominated American geography these seventy-five years. The reality is that twenty-five of those thirty-five physical geographer Presidents held office in the first half of the Association's existence, and many of them—for example, Gilbert, Mathes, Marbut, and Hobbs—focused their professional lives largely outside of geography. In the last thirty-seven years, only ten have been physical geographers—a telling statistic.

The most revealing insights, needless to say, come from reading the actual addresses. Most Presidents who would be classified primarily as human geographers, speechified within the bounds of cultural or economic geography per se . . . or when they did address natural landscape, did so to argue philosophically the illogic of environmental determinism. Indeed, an unhappy result of the "environmentalism" dispute was to confuse physical geography with determinism, a leap in logic that mystifies most of us who came later. There are, in fact, times in the middle and near-recent history of American geography when it appears that only those of the so-called Berkeley School and occasional regionalists recognized that natural environment was functionally significant in the geographic perspective and subject to process-oriented interpretation. Most regional and human geographers seem to have settled for static and descriptive approaches to physical landscape. Mostly though, human geographers have revealed little interest in the role of physical geography and its practitioners in the interpretation and development of landscape studies.

If human geographers have had no problem going about their own business, physical geographers appear to have been compulsively driven (if only philosophically) to the business of human geography, especially as it relates to the so-called man-land tradition. Thus, we witness the spectacle of many physical geographer Presidents, from William Morris Davis onward, stepping back from their own specialties and bespeaking, instead, the virtues of integrative culture-environment studies. G. K. Gilbert focused on the human side of earthquake hazard

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Those presidents associated to a considerable degree with alpine and/or polar regions include, chronologically, Ralph Tarr, Lawrence Martin, François Mathes, Wallace Atwood, W. H. Hobbs, Griffith Taylor, F. Kenneth Hare, J. Ross Mackay, and Melvin Marcus.
forecasting. Nevin Fenneman presented his famous “circumference of geography”. Lawrence Martin pursued a boundary dispute; and others, such as Brigham, Dodge, Dryer, Huntington, Marbut, Johnson, Atwood, Hobbs, Bennett, Trewartha, Hare, and Borchert, also dealt in such themes.

There are two ways to view this phenomenon. In the first perspective, cynics might claim that physical geographers leave their physiographic provinces and energy fluxes only long enough to make ritualistic and uninformed forays into the human geography realm. I prefer a second view which suggests that physical geographers (somewhat masochistically, I concede) have never given up their attempt to become involved with human geographers in some integrated mainstream of research and teaching. We have a vision, no matter how imperfect, of the intellectual and practical rewards to be gained from such cooperative efforts . . . and we are constantly puzzled when no one responds to our invitation.

Why does this happen? Early in the century, the effort failed because of the “environmentalism” trap. In the middle of the century, there were insufficient physical geographers to carry out the business of straight physical geography, let alone man-land studies. Finally, in these last decades, physical and human geography alike have become more “scientific” and specialized; there has been a proliferation of research and pedagogic publications, as well. Thus, the effort of leaping back and forth in the literature in order to remain abreast of the field has become difficult for even the most enthusiastic proponents of disciplinary breadth with depth.

These are only partial explanations, however; much of the problem is one of attitude. Most physical geographers (of my acquaintance, at least) make a genuine attempt to understand what is going on in human geography; furthermore, it is part of their undergraduate and graduate education. I am not convinced that a reciprocal effort has been made by the majority of our economically-, locationally-, and culturally-oriented colleagues, but this may be a problem of access to the world of physical geography. In any event, if the past has not been fruitful in these regards, I would suggest that American geography has matured sufficiently that physical and human geographers should initiate experiments and programs in cooperative research and teaching. The effort should be mutually rewarding and provide important disciplinary opportunities for the next decades.

**GEOGRAPHICAL OPPORTUNITIES**

What then are the opportunities that beckon geographers for the remainder of this century and the beginning of the next? The present provides innumerable clues to that future and a remarkable number of them are central to geographical concerns. There is nothing surprising in this. Many of humankind’s greatest problems—for example, environmental degradation, overpopulation, resource shortages or maldistributions, failures of urbanization—sit squarely in the geographer’s realm, for to understand these problems and strive towards their solution
demands firstly, understanding of spatial organization; secondly, commitment to the integrative, holistic view; and thirdly, systematic application of the man-land perspective.

I am not suggesting that geographers alone hold some special key to the problems that beset humanity, but geographers do have a perspective and an array of skills which dovetail with society’s needs. What we do not presently have is the numbers to fill society’s requirements for planners, environmental managers, and decision makers—not to mention skilled specialists such as cartographers or pollution climatologists. This is, in part, a response to our historic commitment to academic geography and an abiding interest in intellectual issues. One can hardly fault this aspect of the discipline, because it is the source of our concepts, theory, and methodological bases.

Potential for Applied Geography

On the other hand, our more practical geographic brethren have filled their fields in relative obscurity, at least as far as the purview of academic geographers has been concerned. It is a matter of both disciplinary and institutional embarrassment, I think, when neither our professional associations (including this one) nor most of our academic departments are able to identify, let alone locate, the thousands of geographers graduated with baccalaureate or master’s degrees. While a majority, given their prescribed liberal arts education, may have diffused across the nation’s economic and social spectra, no small number surely have continued to use their geographical skills in responsible positions in either government or the private sector. These geographical practitioners represent a rich and essentially untapped disciplinary resource.

Meanwhile, our colleagues (and competitors) in other social and natural sciences have been avid in their invasion of the “environmental” and “ecological” fields that are addressing many of society’s problems. For example, the same upper-air meteorologists who cheered the near demise of climatology in the National Oceanographic and Atmospheric Administration have developed a sudden love affair with climatic statistics and interface investigations. Is this an immaculate intellectual conception, merely coincidental with passage of the National Climate Act and the potential release of millions of research dollars?23 Similarly, our friends in geology are doing excellent work in the area of geologic hazards. It should not surprise anyone that the great majority of that work is constituted of geographical geomorphology.

The point of these somewhat petulant remarks is that we seem to move only slowly into the real world activities which hold their roots in our own geographic scholarship. Economists, geologists, meteorologists, and anthropologists do not appear to suffer the same reluctance. Could it be that they understand Nevin Fenneman's overlapping rings better than we?24

Other professions aside, there is a tremendous array of practical problems beckoning the geographer, and it is professionally sensible, indeed necessary for disciplinary growth, to more fully address them. At least five reasons are worth mentioning: 1) college and university faculties have entered a steady state (or even a declining one) and employment opportunities for geographers will be greatest in private and governmental sectors; 2) a remarkably large body of concepts and models developed in recent years requires testing, possible revision, and useful implementation; 3) conceptual and methodological scholarship will increase rather than diminish in an era of application, because worldly challenges will help to identify and initiate new intellectual directions; 4) a large number of socio-environmental problems are exemplary of issues amenable to the man-land perspective (for example, environmental impact statements, water management projects, natural hazard legislation) and thus provide an ideal cooperative zone of action for physical and human geographers; and 5) the problems themselves are inherently significant and geographers should contribute towards their solution.

In any event, geographers have entered the initial stages of what William Pattison has

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23 United States Code, National Climate Program Act of 1978, Public Law 95-367, 92 Stat. 601. Section 9 of the National Climate Program Act authorizes appropriations not to exceed $50,000,000 for the fiscal year ending September 30, 1979, and not to exceed $65,000,000 for the fiscal year ending September 30, 1980. Additionally $10,000,000 is authorized for grants in each of the fiscal years ending September 30, 1979, and September 30, 1980, respectively. To date, no funds have actually been appropriated.

24 Fenneman, op. cit., pp. 3–12.
called a period of intervention. Applied geography is currently de rigeur. The Geographical Review has a major section on applied geography, universities hold symposia and seminars on the subject, last year's Binghamton Applied Geography Conference promises to become an annual event (with rotating locations), and problems of applied geography have been addressed in The Professional Geographer and Geographical Survey. Indeed, our own Association has recently become involved in defining, finding, and nourishing so-called applied geographers.

Unhappily, "applied geography" is not an especially satisfying term. We are, however, temporarily stuck with it and needn't belabor its inadequacy; rather, let's recognize its conventional usage—which implies practical adventures in geography pursued not solely for scholarly return—and move on to some of the interesting problems that confront geographers.

Energy, Environment, and Urbanization

If one wanted to quickly symbolize the present and future problems of North American society (and as an ostrich, exclude nuclear war), no three words could serve better than energy, environment, and urbanization. Other significant issues—such as water or population or quality of life—can be submerged by these three subjects, which are, at once, interdependent and central issues in the man-land equation. To view cities or energy flow, for example, solely from the perspective and methodology of the social scientist is to be divorced from both the spirit and reality of the modern world. Human modifications of the earth's surface, air and water, has so escalated that it is literally unsafe to leave earth management solely in the hands of social scientists and their unlikely allies: engineers, lawyers, and architects. They, after all, have provided the leadership whereby society is unprepared to cope with energy management or environmental quality today, let alone tomorrow.

Indeed, it is ironic that geographers, who so often complain that they are insufficiently consulted or represented in planning and decision-making processes, ought to be relieved at how little they have actually contributed to the manipulation of North American environments and urban landscapes. Let the blame fall elsewhere, for if the city is visibly one of mankind's greatest achievements, its uncontrolled evolution also can lead to desecration of both nature and the human spirit. It is not easy to assess the blame in such instances. Is it the planners, the politicians, economic forces, or the people themselves? Certainly, it is seldom the geographers, for they have lacked opportunity in most places to contribute to either the creation of the problem or the search for its solution.

Had geographers been consulted, it would be reassuring to think that they would have anticipated and resolved, in part, some of the more prosaic environmental problems which confront urban dwellers and cost millions annually for remedial action. Surely, for example, geographers would take into account effects of pavement and roof areas on local and regional watersheds when locating a subdivision or shop-
ping center. Or wouldn't geographers be certain to consider air pollution potentials as a major criterion for determination of zoning? And isn't mapping of mass-wasting hazards a standard element in settlement and transportation planning by geographers?

I fear there is no assurance that any of these relationships would be considered by urban and locational geographers, the majority of whom operate strictly from the perspective of social science. This will not suffice in the 1980s, when rent theory and optimizing transport models will have little real world value if not interrelated with the likes of pollution plumes, natural hazard mapping, and flood forecasting. Unhappily, physical geographers fare no better. Few have devoted research energies to the problems of urbanization and when they have, most have operated in a natural science isolation booth, expressing little concern for the relevance their microclimatic fluxes and anomalous precipitation statistics may have to urban planning or quality of life.

So, as Pogo told us, we have "identified the problem and it is us." Superficially, the overall solution is simple: geographers from different specialties should mutually address interesting research problems. The reality, needless to say, is more complex and requires several responses. First of all, the blinding steer many of us solely along narrow, subspecialized paths should be removed. Specialties are essential, but need not cause loss of geographic perspective. Secondly, we must learn from each other. There is no better way to accomplish this than team research. Team efforts enhance communication and learning; in fact, the sum product is frequently greater than might have been expected of the individual parts. An incidental benefit of such activities is that exposure to a colleague's work and philosophy often transits from tolerance to genuine appreciation. Thirdly, and perhaps most importantly, geography must seek new concepts, approaches, and models which explain and/or help interpret the man-land relationship. The present state of art is primitive and rather stale; its advancement is a major task for geography's future. The pressing problems of energy, environment, and urbanization provide a timely laboratory in which human and physical geographers can perfect the human-environment paradigm.

EDUCATION OF THE GEOGRAPHER

It is obvious that the kinds of roles that I have identified for geographers place a premium on both breadth and depth of knowledge, skills, and experience. They also demand practitioners who are inherently at home with the broad, normative models encompassing integrative and man-land approaches in geography. With hesitation, I suggest that this aspect of most geographers' skill profiles exist a priori; it is not something easily taught to or learned by persons who do not already intuitively perceive that point of view. The rather extraordinary, sometimes grotesque, distortions in the last decade of the meanings and applications of what we used to call "ecology" and "environmental studies" is sufficient proof that not everyone is equipped to deal rationally with either interdisciplinary or integrative perspectives. On the other hand, I would argue that many are drawn to geography because they are sensitive to the discipline's potential to rationally aggregate and analyze overlapping elements and processes of the biological and physical earth "spheres."

Unhappily, this vision is more easily seen than achieved and highlights geography's venerable and ongoing argument: breadth vs. depth. The issue has been much debated in many contexts. A quartet of examples are: 1) how much time should be given to the geographer's formal, institutional education and should it be different than in other fields?; 2) to how much physical geographical training should human geographers be obligated and vice versa?; 3) how should specialties (i.e., faculty positions) be allocated in an academic department?; and , 4) can a commonly-held set of skills and viewpoints (e.g., cartography, mathematics and statistics, field methods, spatial analysis, systems methodology) satisfy the breadth requirement in the absence of a broad range of subject-oriented courses?

No consensus has been reached on these or related questions nor is one likely to be. It re-

\[28\] The terms "ecology" and "environment" have been rather battered over the years, but nothing compares to the corruption of these words that accompanied the so-called environmental movement of the late 1960's and early 1970's. While the causes may have been worthy, it is distressing to find, for example, that anti-litter campaigns and bottle recycling became substitute definitions for ecology or environmental planning.
roduces to personal attitudes and often, whether we like it or not, the practical exigencies of personal or institutional situations. Also, as stated earlier, geography to date has developed only the broadest generalizations which address a spatially-organized interface model. It follows that the so-called breadth requirement will, until more detailed and operational models appear, continue to be taught and applied in traditional manners; that is, either unrelated subjects as beads on a string or overlapping geographical patterns. In other words, integrative and synthesizing geography has not (excepting technological advances) progressed greatly since *Inventory and Prospect* was the law of the land.29 The educational process has, at least in this respect, stagnated.

This is not necessarily bad. The last quarter of a century has been a period of more specialized research productivity in both human and physical geography and the results of these researches have been rapidly diffused, especially in the 1960s and early 1970s, through media such as the publications of the Commission on College Geography, the High School Geography Project, and federally-supported institutes for college teachers. At no time in geography's history has the lag time from research to educational presentation been so abbreviated. Indeed, as geography looks at the 1980s, a rejuvenated marriage between research and education should be given highest priority. The rewards will extend beyond academia into both basic research and applied geography.

Thus, as geography enters the last decades of the century, the "depth" of geographical training has been significantly improved. Conceptual innovations, increased rigor and sophistication, and new techniques have been introduced across the urban-social-behavioral spectrum of geography, not to mention the varied realms of physical geography. The emphasis has been on details within subfields of geography, an expectable expression of geography's position within the cycle of science. But that phase of development has been maturing and it is time, perhaps, to move to more elegant encompassing models and to give them academic and practical expression.

Who are the geographers who will accomplish such lofty goals and how will they be trained? I am not certain, but suspect that many are already among us. Most geographers mature slowly, and more than one has taken that extra decade or so to feel even tentatively comfortable with both the breadth and depth of his or her subject, and yet of those, only a few are likely to emerge as intellectual leaders. Happily, that is all that is necessary.

The least likely source of new scholarly leadership lies in mechanistic solutions, such as expanding the length of the geographer's formal education to accommodate both breadth and depth. This is not to desert the position that most geographers would profit by additional formal training. Most realistically, however, the best of American geography in the next few decades will be produced by yet unidentified persons who will concurrently have a commitment to the geographic perspective, think their professors are all irredeemably out-of-date, and are convinced of the shallowness of everything written since Humboldt.

**COMING FULL CIRCLE**

For my concluding remarks, I would like to turn back to 1904, when the Founding President of our organization, William Morris Davis, stood before a small coterie of geographers in this same city of Philadelphia and addressed what he called "The Opportunity for the Association of American Geographers."30 He declared his hope that the new Association would "bring together a large majority of the investigating geographers of the United States—indeed, of North America." Davis then said:31

If we are really successful in thus associating the students of the organic and inorganic sides, the human, economic, zoological, botanical, climatic, oceanographic and geologic sides of geography, and in leading them to work in view of and in cooperation with each other's presence, we shall have taken an important step in the development of geographical science; for it cannot be doubted that students on the different sides of our subject have as a rule lived too far apart.

Much has happened to American geography in the seventy-five years since Professor Davis' address. Philosophies and methodologies have

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31 Davis, op. cit., footnote 30, p. 85.
appeared and disappeared, fads have come and gone. Some specializations have been “in” one decade, only to be “out” the next. Indeed, each of geography’s subdisciplines not only has experienced deserved moments of glory, but also has suffered through periods of extreme, and sometimes accurately perceived, paranoia. Physical geographers can speak long and loudly to the latter condition. But for all the debates and polemics—the circumferences and hexagons and orthogonal grids we have used to explain geography to ourselves and others—the main thrust of those seventy-five years (albeit with more than one documented hiatus) has been growth both in the intellectual content and the usefulness of the discipline.

The journal articles of the Association’s founding fathers, especially those derived from their speeches, tell us that those scholars (and they were primarily physical geographers) had a vision of an integrative approach that united understanding of natural and human landscapes. We are often compelled to quarrel with their deterministic ontography or proclivity for uninterrupted Darwinian life cycles, but we should not lose sight of their remarkable, indeed sometimes towering, achievements as physical geographers nor should we underestimate their capacity to visualize geography’s broader and more complex potential. These men did, after all, create the principal forum in which American geography evolved.

They saw a geography in which physical and environmental subfields held full partnerships with human geography in the interpretation and management of the earth’s surface. Unhappily, it didn’t happen that way. The academic vicissitudes of three-quarters of a century led and sustained American geography into what Professor James has accurately attributed as one of the worst of our persistent errors: the so-called physical-human dichotomy. The last quarter-century of this Association’s first hundred years could very well see the end of this dichotomy. It will require hard work, new researches, a spirit of cooperation, no small amount of luck, and a realistic expectation for both breadth and depth in the geographer’s education.

But, if we are to see geography’s man-land theme achieve fruition during the remainder of this century—and there will never be a better opportunity—it will only be accomplished with the increased activity and visibility of physical/environmental geographers. Also, it will only happen if human geographers are full participants. All geographers share the common perspectives that give the discipline its identity; it is time we shared not just the view, but also the activities, the research, and their applications. The time is propitious and it is not stretching the point to state that after seventy-five years we are finally coming full circle. With persistence and luck, the next quarter-century could see the circle closed on a rational geography that fulfills the promise we hold for the study of earth and humankind together. This Association will play a central role in that effort, as we have in the past developments of the discipline, for, as President Davis told us seventy-five years ago, there is “opportunity for the Association of American Geographers.”