

THE MONADNOCK



CLARK UNIVERSITY
GEOGRAPHICAL SOCIETY

Vol. XLVI
June 1972

THE MONADNOCK

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EDITORS' NOTES

It is possible to sum up the past year's events at Clark, to provide some sense of closure? Like many times in the past, each of us had been uplifted and beaten down. We have felt excitement and apathy. We have helped shape the system, yet each day the system shapes us. In the quiet of the editors' office near the workroom, events here at Clark are near and yet so distant. To sum up the experiences over the last two semesters would be hopeless. Still, in some small way, the contents of The Monadnock provide -- at least for us, the editors -- an overview of events and interests in the Graduate School over the past academic year.

The articles that follow indicate some of the current academic interests at Clark, but by no means do they demonstrate the full range of scholarly geographic investigation. The first two papers -- involved in two different ways with the philosophy of geography -- were originally written for the Core Course, an intensive introduction to geography for all incoming graduate students. Nancy Burn's paper, a personal statement of what geography needs to be today, prescribes a humanistic discipline which is concerned with real-world problems, while Hank Aay, in a paper closer to traditional scholarly inquiry, looks into the spatial tradition in geography and comes up with some interesting conclusions. The third paper by Gordon Hinzmann represents study at Clark focussing on environmental perception, cognition, and behavior, work which appears to be becoming more and more important in geography. The piece by Alan Marcus, a physical geographer, demonstrates an interface between physical and urban geography, while James Cerny's paper on cartogram indicates that cartography at Clark is still going strong.

The poem on political geography by Bob Morrill and Robbie Smilnak again indicates a concern for making geography relevant, a care that is amplified in the coverage of three Clark conferences of the past year which emphasized such topics as public participation in environmental management, the role of blacks in geography and social urban problems. The brief description of Antipode, a radical journal in geography published by Clark, further demonstrates a present concern for relevance. The reports on field experiences in Poland and Jamaica, plus the news from the Workroom and Alumni close this issue of The Monadnock.

To all alumni who took time to answer our questionnaire we would like to say thank you, but frankly admit that because of lack of time and many incomplete responses we did not analyze the data. We would also like to thank the many alumni who contributed funds; Len Berry, acting Director of the Graduate School, Ernie Wight, our photographer; Susan Duquette, who did some fine typing under deadline pressures; Central Services, our publisher; Bove's Restaurant and Miss Worcester Diner, Inc., institutions that provide excellent working environments; and last, but not least, our friends.

The Graduate School of Geography occupies the middle-ground of our lives. In the foreground, our friends get married, have children, come and go, get jobs -- and don't. In the background, the war in Vietnam becomes a war in Southeast Asia and goes on and on and on. Environmental quality seems to be on the wane as a volatile issue in the political arena. The inequalities,

paradoxes and contradictions of society seem only more real against the meagerness of our attempts at resolution.

Poetry and cartograms, philosophical formulation of new and old questions, scholarship and relevance, radicalism and tradition all mirror larger, often unstated, questions about geography and about ourselves. So let us close our editors' notes and begin *The Monadnock* with one such question which we all must answer in our own time. Does the science of geography, encourage growth and change, make our lives more interesting and integrated, help explain and solve some important problems -- or does it not?

Marc Alan Eichen
David Seamon

DIRECTOR'S MESSAGE

Acting as director while Saul is away is to understand something of the position he occupies when he's here, to recognize the inadequacy of most anyone else to occupy that position in that way, and to be very glad when he gets back again.

In many ways this seems to be an important year for the School of Geography and up to now we seem to be weathering well. It is a year of some consolidation and rethinking of goals in terms of the size and scope of the graduate program; in terms of the hard economic times; and above all, in terms of our own evaluation of the academic thrust which Clark can continue to bring to bear. We have a variety of cluster sub-concentrations and non-concentrations, but common links are forged somehow through a growing common focus on a socially aware and a problem-orientated geography backed by the range of tools of the physical, economic, and social sciences.

This year an unusually large group of graduate students will be getting their degrees and leaving Clark, and a substantial group of others will be launched on dissertation research. Amongst both groups will be a number of Black students brought to Clark through the COMGA and ITT programs; no one else will, I hope, feel underprivileged if I wish that group an especially warm good luck in their future careers. The figures recently published on the number of Black Ph.D.s and M.A.s in geography surprised me, and I am very glad that Clark has and will continue to work to redress the balance.

One of the few benefits of being Acting Director this year is being able to get to know better than I otherwise could the graduates and some of the undergraduate students at Clark. A good part of the strength that Clark has lies in its students; I shall feel the intellectual and personal absence of many who are leaving this year. The base that has been built in geography these past few years is a good one. I think we all realize that it is a base and are all prepared to continue to work on the superstructure in a flexible way for a good time to come. In that continuing task, intellectual, moral, and sometimes financial support of all who can help is needed.

Dr. Leonard Berry

A PHILOSOPHY FOR GEOGRAPHY TODAY
or
TOWARDS A COHERENT AND EXPRESSIVE INTERPRETATION
OF THE EARTH AS IT APPEARS TODAY--
TOWARDS THE OMEGA POINT

by

Nancy Burns

To yield is to be preserved whole.
To be bent is to become straight.
To be hollow is to be filled.
To be tattered is to be renewed.
To be in want is to possess.
To have plenty is to be confused.

Therefore the Sage embraces the One,
And becomes the model of the world.

translation from
Lao-tze in Tao Te Ching

. . . The future of the earth is in our hands. How shall we decide? A common science merely brings the geometric point of different intelligences nearer together. A common interest, however passionate, merely brings beings into indirect touch, through an impersonal which destroys personality. It is not our heads or our bodies which we must bring together, but our hearts.

Pierre Teilhard de Chardin in
Building the Earth (Construire
La Terre)

Introduction

My philosophy is my point of view. A philosophy of geography therefore will reflect my point of view concerning the relationship of man to his milieu.

The road not taken is the economic one; this is not because one can divorce economic activity from man's lived experience nor because its importance is insignificant. Philosophy reflects the fact that each happening in existence is a factor in the nature of every other happening, but for too long now in American life there has been an overly excessive economic emphasis which has excluded the social domain. There must be a reawakening of social consciousness in society; a philosophy of geography to be meaningful must reflect this reawakening. To enunciate and affirm this I have drawn on cogent ideas, philosophical and geographical, antecedent and contemporary which best elucidate this for me.

In other words, there is an urgent need today for a philosophy which will encourage man's return to reality, the reality of "how necessary life is to other life" and of how tantamount love and action are in the striving toward perfect knowledge. It is imperative that geographers shift their emphasis from the 'why' question, to the 'what' question which elicits a much stronger human concern (34). In other words, the quantitative revolution is over and it would behoove geographers to take decisive action to put their house in order (29). They can no longer afford to ignore the pervasive, persuasive plea of man to be included in their considerations (34).

But, one could argue, geographers have been concerned with man. The core of this concern, however, has been an economic growth giant that dwarfs man as it goes about its business in a maze of programmed census data and factorial analysis. Within this 'model' framework there has been little room for philosophy per se. We are confronted by the fact that, although the logical positivists, the prestigious practitioners of the past decade, did not deny the necessity for a philosophy, they strove solely for explanation deduced nomothetically. David Harvey in Explanation in Geography published in 1969 epitomized this search even though in another respect, if one discounts the fact that he relegated philosophy to the sidelines, his systematic investigation of the quantitative revolution is an outstanding synthesis much needed in the sixties (15). It arrived just a little too late, "as the bloom was leaving the spatial movement, and it ignores much of the current literature in philosophy on explanation". (14). We would beseech him, and geographers of this ilk, to reexamine their emphasis and to restate their brief. Explanation alone is not an adequate substitute for

A creative imaginative effort backed by the control which scientific method gives us over the reasonableness and consistency of statements which we make about reality (15).

To be meaningful, a philosophy of geography must take into account man as a part of a highly integrated web in a constantly vibrant, moving milieu which unites as it separates and integrates. It must take into account man's experiences and perceptions which also are constantly being renewed at an ever quickening pace. It cannot, however, set aside the historical evidence that "all utopias have been stillborn," and that a static society, even a Utopia, will not satisfy a vital human being. "Progress is the realization of Utopias" but the real world is forever changing (11).

There is little need for an 'apologia' by geographers to justify their search for a renewed philosophy. The exigencies of the times are such that this concern is admirable. A reaffirmation of the I-Thou relationship within the milieu and a reexamination of the interplay between the cohesive components of the system should elucidate and strengthen man's response to his total environment (31). Involvement with the elementary fragments of the system, a reductionist technique in the Harvey manner, most frequently has meant that "in the analytical process itself . . . interest in the phenomena or the organisms which had been a first concern, is lost" (11). Geographers have shied away from problems of human life, the everyday lived experience, because often these are not readily amenable to component parts analysis. They do not fit neatly into the 'model'.

The time has come therefore, to move toward a richer and more human philosophy of life, to rediscover man's partnership with nature, to generate a new kind of 'Gai Savoir' (11). The perception movement and the current interest in social geography in America, in my opinion, present pregnant possibilities for forging this philosophy. If we can think through geography from the social and perceptual point of view, we may be able to break the shackles and eventually share the experience of Goethe's beautiful and legitimate 'I' as well as the ancient Chinese philosopher, Lao-tze's camouflage, thereby avoiding an incubus (21). In the current vernacular, we need to move more rapidly toward Consciousness III, what Charles Reich in The Greening of America calls a higher logic and a higher reason, in the shared quest for experience and wisdom within the community (29). "The new consciousness seeks new ways to live in light of what technology has made both possible and desirable" (29). Neither social awareness nor scientific explanation is sufficient in or by itself.

The perception movement in geography is of rather recent origin. Yet it seems probable that some of its roots go far back, in fact, antedate history. The movement has gathered momentum in the last few years and offers an exciting new paradigm, a new puzzle-solving technique to geographers willing to explore and to merge their geographical knowledge with psychological findings. There are at least two streams of thought which help to delineate and define the perception movement: one, stemming from a humanist-historical approach such as that of John Kirtland Wright; and the other having its origins in the social and behavioral science, origins such as those found in Franz Boas' anthropological work, The Mind of Primitive Man (1). Because of the prevailing stress -- for instance, the poverty, pollution, population problems -- on a society which is struggling to maintain equilibrium, there is an urgent need to relate the inner and the outer man; to examine and to reexamine the quality of the environment; to show and improve relationships between man and his milieu and man in his milieu (6).

Wright says that the realm of geography consists of a relatively small core area which comprises the formal studies as such; and of a much larger periphery which includes all the informal geography contained in nonscientific works. More importantly, it also includes the subjective geographical conceptions of the world about them which exist in the minds of countless ordinary folk. Imaginative perception in either an historical or modern context offers valuable insight into

landscape interpretation (42). On the other hand Robert Kates' dictum is that the environmental disciplines, the social and behavioral sciences stand somewhat split between science and design (suggestive of C. P. Snow's two cultures) and therefore are under one tent (31). Sister Annette Buttner pleads the case for an awakening of social awareness in geography. Geography and these related disciplines, therefore, are in good position to build a much needed bridge to span and shed light on our understanding of man's response to his milieu. To build a philosophy we need to study these underpinnings.

Relevant Philosophical Antecedents

Plato was aware of and stressed the controlling influence of ideas although he believed that they existed independent of man. Aristotle suggested that mind is a function or process (in more modern terms) of the body, likening it to vision as a function of the eye. He mistakenly believed that it was the heart and not the brain which received the effects of the stimulus or environmental objects on the senses, but he correctly believed that somehow the impressions left were the source of ideas; that these ideas could be combined in some manner; that they were the source of conscious experience; and that they provided in some way control of behaviour (37). We may quickly bypass the 'unbridled rationalism' of the Middle Ages, when, Whitehead maintains, the effect of a sharp division between nature and life poisoned philosophy (38). An important exception to this was Saint Francis of Assisi who humbly attempted to set an anthropocentric religion on a different path. Modern Western science was cast at that time in a matrix of Christian theology. And the dynamism of religious devotion, shaped by the Judeo-Christian dogma of creation, gave it impetus. St. Francis, a left-wing advocate of the Middle Ages, failed in his self-assigned task but his ideas are relevant because Western man is still poignantly struggling to reject the axiom that "nature has no reason for existence save to serve man" (36).

From the thirteenth century through the Renaissance, scientists such as Galileo, Newton, Leibnitz, Descartes, and Bacon to name a few, explored, explained and expounded philosophically. Whitehead claims, that brilliant though this thought was, its 'misplaced concreteness' added more inherent confusion to the scientific scheme, inherent confusion which we are still striving to dispel. In support of this he signals out two whom we may briefly examine, Descartes and Bacon. Descartes was the quantitative genius, the model-maker, of the seventeenth century. The cardinal aspect of his philosophy and thrust was to extend the mathematical method to all fields of human knowledge. He viewed the physical world as mechanistic, divorced from the mind, but always from a scholastic point of view. He was a dualist. In a way Descartes and Francis Bacon supported the same principles; the latter emphasized experience while the former relied on rationalization and logic (37).

But in his essay, "The Century of Genius" taken from Science in the Modern World, Whitehead gives evidence that Bacon, like Saint Francis, was out of the mainstream of his time. In discussing Silva Silvarum written about 1620, Whitehead quotes Bacon,

"It is certain that all bodies whatsoever, though they have no sense, yet they have perception: . . . And sometimes this perception in some kind of bodies, is far more subtle than sense; so that sense is but a

dull thing in comparison of it: . . . it is another key to open nature, as well as the sense; and sometimes better" (39).

In light of this, is the emphasis of David Harvey's Baconian Route to Scientific Explanation correct? (15). Or did we long ago misread Bacon and have we been living with its consequences ever since? Whitehead feels that Bacon expressed a "more fundamental truth than the materialistic concepts which were then being shaped" (40). Of course, the seventeenth century as we have said, also saw the infancy of pure mathematics, the Cartesian coordinates and curves, which was destined for such a phenomenal growth in the nineteenth century, a century of "Victorious Analysis." Alfred North Whitehead sums up the picture in these words:

The enormous success of the scientific abstractions, yielding on the one hand 'matter' with its 'simple' location in space and time, on the other hand 'mind' perceiving, suffering, reasoning, but not interfering, has foisted onto philosophy the task of accepting them as the most concrete rendering of fact. Thereby modern philosophy has been ruined (39).

This philosophy coupled with the scientific thought of the mathematician so adept at dealing with abstractions in our inheritance. Sense perception also has a dual character, however, an inner and outer part. Sense perceptions are not 'sharp-cut'. They are extraordinarily vague and confused modes of experience. There is considerable difference between the way we perceive a stone visually, tactilely or through its molecular activities as described by the geologist (41). And then, of course, there is the philosophers' stone -- a belief in the alchemists' doctrine that dross metal could be converted into gold (12) (28). We as humans concentrate on visual perception, a narrow formulation stemming from eighteenth and nineteenth century thought. This should raise many questions for us. How do our personal experiences depend on our physical selves; how can or do we take into account our own state of mind directly preceding the immediate present of our conscious experience; how do we create a Gestalt whole (30)? In addition to sense perceptions, therefore, inadequate by themselves, we are essentially "a unity of enjoyments, hopes, fears, regrets, valuations of alternatives, decisions -- all of them subjective reactions to the environment as active in our nature". In other words, the key notion in Whitehead's spiraling philosophy is that "the energetic activity considered in physics is the emotional intensity entertained in life which has a vector character as its essence (37)". Our lived experience is paramount.

Is it possible to draw an analogy between Whitehead's description of how philosophy oscillated in a complex manner between these extremes, and modern geographic thought. We ask are his dualists, who accept matter and mind on an equal basis, the geographer's probabilists; are the monists who put mind inside matter, the environmentalists, and are those monists who put matter inside mind the possibilists? But this juggling with abstractions is not the way to overcome the inherent confusion introduced by the ascription of "misplaced concreteness".

Relevant geographical antecedents

Despite Oscar Handlin's recent pronouncement that "history is a discipline

in crisis" and that geography has largely receded from the historical consciousness in the United States (13); and despite Daniel Boorstin's disparaging indictment that the humanist-historians aimed at individual portraiture and the new social science historians compounded the situation by producing group caricature; it does not seem prudent to completely evade a cursory inquiry into the historical-humanist approach in the geographical context (2). We cannot quite agree that "historical geography has become a foundling," in one reviewer's exuberant metaphor, or a beast with the familial expectations of a mule" (14).

In 1925 a monumental and impressive work The Geographical Lore of the Time of the Crusades by J. K. Wright was published. In this he explores, through an extensive collection of writings and graphics, peoples' attitudes about the countryside and their impressions gleaned from nature; impressions and ideas such as those which contributed, for example, to the Eden garden myth "as the ideal environment for human life: and to the notion of the interacting influence of man and environment as evidenced in attributing "the wild ferocity of the natives of Poland partly to the nature of the soil and partly to the influence of their neighbors" (43).

George Perkins Marsh, a Vermonter, also contributed to this movement. Marsh, in Man and Nature written in 1864 anticipated the 'public need vs. private greed' conservation movement when he advocated "the employment of a sense of vision in the study of nature." He admonished his fellowman that "the earth was given to him for usufruct alone, not for consumption, still less for profligate waste" (26). Despite this early warning, it is only recently that Americans have taken cognizance of Marsh's usufruct concept in their conservation efforts; in Melanesian society, usufruct, or wise use, has always been part of their land use philosophy. Marsh's perception, however, in another geographical context, did not extend to America's Far West. Sharing the Eastern Whig fear of the potential dominance of the West, in 1848 Marsh asked:

Just what common interest Boston had with the Bay of San Francisco, or New York with Monterey, or Charleston with Puget Sound. Even if Anglo-Americans took possession of the remote area beyond the great Rockies, it nevertheless by geographical predestination belonged to the Orient (10).

Was his vision colored by the inland location of his home state?

In 1946 Wright made a further plea for wider use of imagination in geography when he said that the most fascinating terrae incognitae are those within the minds and hearts of men (42). David Lowenthal writing in the 1961 AAG Annals also considered the relation between the world outside and the pictures in our heads, a phrase first used by Walt Lippman in 1922 in his classic work, Public Opinion. Also in this vein, Daniel Boorstin says the American citizen "lives in a world where fantasy is more real than reality", and where "the image has more dignity than its original". He says Lippman's 'stereotypes', which are oversimplified patterns that help us find meaning in the world (but which have less relevance now, because of replacement by pseudo-events of the Graphic Revolution) have important bearing on how we perceive: "As individuals and as a nation, we now suffer from social narcissism" (2). Wright's idea, therefore, which he sums up in 'geosophy' -- the study of geographical know-

ledge from any or all points of view and the cogent insight of Marsh, Lowenthal and Boorstin attest to a philosophy underlying the perception movement in geography.

The social and behavioral sciences were also enjoined. From the early anthropological work of Franz Boas and the studies of Kurt Lewin, psychologist, we can ferret out philosophical significance applicable to geography. A legend among Franz Boas' students was that the logic of the problem he pursued in his doctoral thesis, "The Contribution to the Understanding of Color of Water" forced him to seek an answer in the psycho-cultural field. He recognized, they said, that one factor in determining perceptions of the color of water was the body of ideas regarding color held by a people, a convention of their culture (17). Boas' work in anthropology has had wide dissemination; he was constantly concerned with "misconceptions" about race. For instance, he stated that "there is no fundamental difference in the ways of thinking of primitive and civilized man." He was especially interested in an individual's acquired responses and in the influence of culture, particularly on the perception of color and form (24). Boas recognized the value of field investigation; he lived with the Eskimo and the Indian and observed how alike his ways and theirs really were. He was able throughout his studies to hold a balance between the study of the social life of man and its humanistic creative aspects. He related his writings, using emphasis rather than exclusiveness always, to life as a whole. "He pointed the way toward the use of cross-cultural studies as a bridge to bring together the social sciences and the humanistic disciplines" (1). He has been called a cultural relativist. Like Cassirer, he emphasized the importance of language and symbol in the study of culture (9). One of Boas' favorite examples has to do with the single word symbol 'snow'. The Eskimo way of expressing the concept involved one word for 'snow on the ground'; another one for 'falling snow', a third one for 'drifting snow'; and a fourth one, 'a snowdrift' (17).

The psychologist, Kurt Lewin, anticipated topological psychology in his paper written in 1917 entitled, "War Landscape". In this work which deals with the phenomenology of landscape, Lewin describes how the environment appears to the soldier in trench warfare; he calls the partition between observer and object, "life-space"; his primary concern is with what goes on in that life space. This "is where he expected to find the relevant variables, the nodal points which will follow exact laws without exception". Stimuli and action outcomes played important roles as observables.

As a soldier approaches the front lines he experiences a peculiar transformation of the appearance of the landscape. The landscape at a greater distance from the front, the peace landscape, seems to extend evenly on all sides almost to infinity. This landscape seems to be bounded, the environment suddenly comes to an end. It has a direction, a front and a back, and this direction is not referred to the marching soldier but belongs to the environment itself . . . it is experienced as a feature of the objective landscape (16).

The soldier distinguishes between peace-things and battle-things by which he means that the same object, a farmhouse for instance, may be experienced in a different way depending on whether it is seen in the context of peace or of battle. This can be compared to Floyd Allport's more recent 'inside-outside' problem, the interaction between the person inside and the environment which is outside. Koffka says that Lewin's account is "an exceedingly good

and instructive description of a field with a very simple kind of inhomogeneity" (16). It is true the physical geographer's description of the war landscape would differ from Lewin's phenomenological description. The geographer of that era would give site and situation of the hills and villages but not necessarily relate it to their function in giving protection from the enemy. Is it possible to say that the 'phenomenal' landscape representing the experience of a typical soldier, is entirely subjective? Is it perhaps the milieu somewhere between the behavioral environment and the geographical environment, be it descriptive or model?

Contemporary Philosophy: Phenomenology and Existentialism

From the foregoing antecedents we now can proceed to a current philosophy for geography based on phenomenology and existentialism (20). In this regard geography is an act of intellection. It is a search for meaning by people who have geographic skills; it is an expression of universal aspiration which implies order and significance in the lived experience or 'phenomena' (35). In support of this point of view we present the following evidence.

In David Lowenthal's inquiry into geographical epistemology, his aim is towards understanding how we perceive our milieu in order that we may be able to make decisions as to how best to order our life-in nature environment. He says we all have individual geographies, separate personal terra cognita, a private landscape much more varied than the general world view: we can conjure up mental maps of expressive imagery or mundane reality (22). The source of an individual's personal milieu is the real shared world, even though we have yet to attain a 'perfect fit'. But, Lowenthal continues, "perception itself is never unalloyed: sensing, thinking, feeling and believing are simultaneous, inter-dependent processes" (23). This is how we would interpret Bacon's pronouncement's of 1620 and Teilhard de Chardin's ideas in 1971 (32). Lowenthal inspects different world views which are arranged in accordance with "a society's or culture's particular structure and requirements, which he points out, "organizes as it perceives the universe", an idea earlier suggested by Boas (1).

Kevin Lynch, Ian Nairn and Yi-Fu Tuan also have ongoing projects investigating individual and group ideas, as well as images and pseudo-events of the city. Lynch in *The Image of the City* found that an individual's system of orientation in creating an environmental image has three components: identity, structure, and meaning -- 'practical and emotional'. Areas of agreement and a consensus about group images are being discovered -- or contrived as Boorstin has pointed out (25). This is important because of its predictive value as to how to model an environment which will be used by many of diverse backgrounds (25). Nairn in *The American Landscape* recognizes that most of our sensing is visual and recommends an appeal to the other senses as well:

tires on a wire mesh bridge
the thump of flags
the feel of brick walks
the accidentally heated city sidewalk
the blast of a klaxon of an unseen freight train
pop records in a music shop.

He claims that "the way to an expressive, exciting total environment is by the creation of separate identities with their own limits and laws (27). Teilhard de Chardin would chide him that he stopped too soon -- the whole series of "senses" is more encompassing (33). Germane to thinking about phenomena and essence is the work of Yi-Fu Tuan. In the recent article, "Geography, Phenomenology, and the Study of Human Nature" Tuan discusses 'environmentalism' where he seeks meaning in order or phenomena and 'existentialism' where he seeks meaning in the landscape because it is a repository of human striving. His conclusion is that geographers cannot afford to neglect asking what is the essence of man, space, or experience (35).

Other geographers working to forge a perceptual link with the sociologists and psychologists are Kates and Burton of the Chicago school, working in the natural resources and environmental field (5); and Sister Annette Buttimer, a social relativist, building on a foundation evoked by the French Vidalian school of human geography (7). Robert Kates' concern is with "environmental science" -- is it 'a science of ambience' or a 'scion of ambivalence'? He too intimates that the quantitative revolution is over and that our interest must now be with the processes of human adjustment and with a search for optimal adaptation. He assigns a 'mission orientation' to environmental and resource planning; he advocates new vigor of thought and method -- similar to Teilhard's 'seeing' -- (33) which he says must entail human interaction with the natural and social sciences (19) (4).

Annette Buttimer working in the field of social geography is building a conceptual framework for the study of society and milieu. Combining phenomenology and existentialism she focuses on phenomena -- i.e., on Husserl's 'what is known' (18) in a reorientation of traditional beliefs based on a timeless sensibility which disinters the system. Her philosophy appears to accommodate modern analytical method and the essence of lived experience without undue conflict (6). Genre de vies (livelihoods) which include economic as well as social aspects, and circulation or communication and transportation networks, interact. We are conscious of a dialogue between society in its milieu; social geography attempts to elucidate meaning from this dialogue and to discover the ongoing circulation pattern in this experience. To do this requires the subjective commitment of an individual, and here is where we find the existential ingredient. A strong visualiser, like Teilhard, her quest in social geography calls for personal reflection on the human situation because existence and the human personality are more significant than any abstractions. Her plea, as we see it, is that geographers must be engagé -- ivory towers are a luxury (8). But like Teilhard, her working models for interpreting genre de vies and man's use of social space make succinct and innovative use of analytic concepts from mathematics and physics. Buttimer's pursuit in social geography is a Teilhardian attempt to illustrate evolution from hominization to humanization; it is also an attempt to build theory for bringing bonhomie out of anomie. It champions de Chardin's noosphere where 'the sphere of mind' superposed on the biosphere, 'the sphere of life', acts as a transforming agency which promotes hominisation (33). It is the unfolding of a philosophy particularly well-suited for geography.

Conclusion

Thus we see that to cope with today's social attitudes, needs and goals mankind is progressing towards a more humane philosophy. Psychogeography and en-

vironmental studies such as those of Lowenthal, Lynch, Nairn and Tuan and many others illustrate this new interest. The natural and social sciences are co-operating with geography to contribute to this philosophy. This is exemplified by Kates and Buttimer especially. There is an ongoing 'progressive psychosocial evolution', which is what Julian Huxley called Teilhard's noosphere. This evolution rejects a dichotomy between philosophy and explanation. What is the phenomenon (phenomenology) and what is its essence (existentialism) describes and defines our philosophy of geography. Teilhard's clear, comprehensive threefold synthesis is:

of the material and physical world with the world of mind and spirit; of the past with the future; and of variety with unity, the many with the one (33).

This is the expression of our philosophy of geography.

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A RE-EXAMINATION: GEOGRAPHY-THE SCIENCE OF SPACE

by

Henry Aay

Space may be the central concept on which geography as a discipline relies for coherence. But the nature of space itself and the different interpretations which may be put on the concept have scarcely been appreciated. (David Harvey, 1969)¹

Two largely irreconcilable views of the nature of space beset modern geography. The first conceives space to be a coexistence of phenomena, a timeless instant, a cross section sliced through time in which the march of time (and therewith change) has been eliminated.^{2,3} The ultimate aim of geographers who labor under this interpretation of the meaning of space is to demonstrate and explain the manner in which all coexisting phenomena, making up the total reality of the temporal instant chosen, are interrelated and integrated. The second view interprets space to be geometry, concerned with such geometric notions as relative location, distance, area and shape. It understands space to be either a substance independent of bodies (absolute space), or one aspect of reality among many others -- biologic, social, political, economic, etc. (relative space). Under this philosophical position geographers abstract the geometric from reality, and study the geometry of variously qualified processes (e.g., political process), as well as the conditions and limitations that distance and geometry place on such processes.

Contrary to the author's early suspicions, the discussion of various views on the nature of space cannot be reduced to a review of the opposition between relative and absolute space.⁴ These are both geometric notions. The interpretation of space of Alfred Hettner and Richard Hartshorne includes far more than a commitment to absolute space. A more basic distinction is required to incorporate the conception of space of Hettner and Hartshorne -- a view that has had a very significant influence during this century, and that continues to shape geography today.

The purpose of this paper is to critically examine and compare these two views of space in detail noting: the nuances of meaning of the two concepts, the manner in which their meanings have shaped the nature and practice of geography, and the difficulties associated with adopting them as concepts defining the discipline. In the course of the discussion some reference will be made to the philosophical literature dealing with the nature of space. If geography is to be defined as the science of space, it is important that geographers examine this concept at the foundational level. The scope of the paper is analytical rather than historical, philosophical rather than methodological: the origins and development of each concept will receive but scant attention; the important question, alluded to in the title, of whether geography qualifies as a science will not be discussed. The first section of the paper is devoted to an analysis

of space as coexisting order, the second to an analysis of space as geometry.

I. Space as Coexisting Order

Only during the past twenty years have both concepts of space concurrently shaped the practice and development of the field. The concept of space as coexisting order has been basic to geography since the beginning of the nineteenth century although other views of the nature of the field have been developed (man-land, landscape, physical geography).⁵ It has received its clearest methodological and philosophical expression in the writings of the philosopher Kant and the geographers Alfred Hettner and Richard Hartshorne.

Space for Kant constitutes the form into which observers cast their perceptions of the world; it provides coherence and unity for perceptions;⁶ it "forms a whole for our empirical knowledge of the world".⁷ In an important sense this is a geometric notion (the second concept of space) concerned with the relative location of phenomena within a certain area, and their total geometric order. We will later consider the manner in which the concept of geometric space is packed into the notion of space as coexisting order. However, for Kant the study of geography does not stop here; interrelationships among phenomena are described. In his own words, "geography... is an account of occurrences which take place beside each other in space."⁸ However, in the Kantian schema geography is essentially empirical; analysis of the nature of interrelationships among phenomena is largely beyond its scope and purpose. Only sciences based on the inner concept of reason are capable of formulating the nature and laws of such relationships.⁹

Alfred Hettner and Richard Hartshorne nevertheless view the essence of geography as the investigation into the nature of interrelationships among phenomena. Hettner writes in 1929:

One must always keep in mind that systematical geographical presentation has two tasks to fulfill: the study and the spread and distribution of various phenomena over the earth's surface and their interrelationship in one place.¹⁰

Hartshorne, for whom concepts such as spatial relation, interaction, and integration are basic to an understanding of the field, writes in his Perspective on the Nature of Geography: Spatial interaction can only mean relations between phenomena in different places (*italics mine*).¹¹ Elsewhere he speaks of these relationships as causal interconnections.¹²

This interpretation of space as a timeless coexisting order has continued to be basic to geographical thought to the present day. It has characterized regional geography for most of this century; Derwent Whittlesey has defined a region as an area "...throughout which accordant areal [we could substitute spatial] relationships between phenomena exist".¹³ It is also caught up in such concepts as areal (spatial) variation and differentiation, in which the spatial interconnections among phenomena in one (geometric) section of earth space are compared to those of another section, just as the discipline of political science might compare political processes in varying social and cultural situations. Historical geography, too, has been engaged in slicing cross sections through time in which temporal change is eliminated, and attention focussed on the spatial interrelationships of phenomena existing together during the timeless instant under scrutiny.

The advent of systems analysis and process thinking, which aim at even more complete integrations of phenomena, has altered the use of the concept of space as coexisting order, and has exposed its weaknesses. A recognition that spatial interaction must necessarily involve time, that the explanatory basis for spatial relations among phenomena often are lodged in past events (hence past phenomena must be related to present ones) has led to an analysis of process as a spatial integration and temporal development of phenomena.¹⁴ Process analysis has become important to such disciplines as regional science, ecology and urban studies.

Crucial to understanding the nature of space as coexisting order is to realize what proponents in this view mean by such concepts as spatial relation, interaction and integration. The adjective spatial as it has been used in the above examples does not address itself to the geometric and distance basis of variously qualified interactions. Rather, the interactions themselves are the object for investigation; these are general terms representing interactions at a distance that mutually bond and condition the phenomena involved in the interaction.¹⁵ An example of such a spatial relationship within the context of space as coexisting order might be the author's relationship with Clark University. His relationship with the University is shown by his commuting between home and school; his place of residence is affected by the relationship he has with the school, as is the University affected by his home environment. The entire multifaceted relationship is game for geographic investigation. It would, of course, be studied as macrobehavior rather than individual behavior, and would constitute only a small segment of a total integration of a geometric section of the earth's surface. Of concern here is why such a relationship should be called spatial since the interaction in question can more accurately be designated as an academic or social relationship to be studied by sociologists just as the interaction between a firm and its feeder plants constitutes an economic interdependence to be studied by economists, and the interaction between vegetation and the physical environment is a biophysical relationship (in the macro sense) to be studied by biophysicists. Yet under the conception of space as coexisting order all three of the above examples represent legitimate geographic investigations.

The adjective spatial is applied chiefly, it seems, because the interacting phenomena are separated by distance, although distance by and large plays no role in the relationship. The meaning of the term spatial relationship within the context of the space as coexisting order is contingent upon an atomistic view of reality that has its roots in classical thought (Democritus) and Newtonian physics.¹⁶ In this view reality consists of hard objects and empty space; the medium of empty space interconnects these bodies via forces and influences.¹⁷ Spatial relationships connect all bodies of whatever class, and make action at a distance possible. Even if we discard the notion of the void in the Newtonian schema as we must, we are still left with two distinct entities: objects and relationships. J. Blaut has pointed out that relationships are every inch as real as objects, and that every so-called object can be disaggregated into constituent objects and process relationships among them.¹⁸ Thus defining an object is largely a problem of drawing a line between it and its environment; a region is therefore as much an object as a firm, and an atom is as much a region as a city.

Space itself (here asserted by the author to be distance, area, relative location, i.e. geometry -- the second interpretation of space) has effects neither on the bodies nor their interrelationships. Rather it is absolute, unchangeable and immovable behaving only as a kind of cosmic glue.¹⁹

Geography that considers space to be a coexisting order has worked out of this Newtonian billiard ball perspective, or at least out of a view that has separated object from relationship. Economic, physical, social as well as biophysical, socio-physical, socio-economic etc. relationships among phenomena separated by distance make this coexistent order possible. As Hartshorne points out:

Geography, then, as the second chorological science is the study of the spatial arrangement on the surface of the earth. If no causal relations existed between the different places on the earth, and if the different phenomena at one and the same place were independent of each other, no special chorological conception would be needed; since, however, such relationships do exist, which, by the systematic and historical sciences are comprehended only incidentally or not at all, we need a special chorological science of the earth or the earth or the earth surfaces.²⁰

We will postpone the question raised here of whether the systematic sciences avoid studying such relationships. First we must complete the discussion of the word spatial in the context of space as coexisting order by observing one more important feature.

It is important to note that a geography which interprets space to be a coexisting order, and the task of the geographer to investigate the manner of this coexistence (spatial relations, spatial integration, etc.) has packed within it a notion of space as geometry (relative location distance etc.). Mapping the population of phenomena to be spatially related and integrated gives the geographer a first approximation of their interconnectedness. A geometric construct such as a map denoting the relative position of and the distance among the phenomena is employed as a launching pad for the investigation of the nature of the relationships among phenomena. Juxtaposition and proximity give important clues to the nature of relationships among phenomena. For example, the proximity of trucking firms to a large automobile assembly plant provides evidence that interrelationships between the two concerns exist. However, it provides little information as to the nature of such an interrelationship. However, despite the fact that geometry or morphology gives us clues, it does not enter into the investigation of relationships among phenomena as one dependent variable affecting the relationship. Rather, as in the Newtonian schema the geometric structure is silent and passive affecting neither the objects nor their interrelationships. As Hartshorne discussing Granö's interpretation of areal integration puts it:

Granö appears to assume that the material objects responsible for our "landscape sensation" form a unit or whole (Ganzheit),

because our sensation of them is a whole, but the fact that the human mind has a unit impression of a collection of things does not prove for a moment that they have in themselves any relation to each other, other than juxtaposition. (*Italics mine*)²¹

And in Perspective on the Nature of Geography he makes a significant assertion that:

If there were no relationships among phenomena other than juxtaposition, geography would be no more than an encyclopedic compendium of little intellectual value.²²

Geometry, it seems, is related to our unreliable perceptions, (the Kantian outer sense) whereas understanding the nature of interactions among objects is a function of our intellectual capacities (the Kantian inner sense).²³

We have seen thus far that the adjective spatial is employed in the analysis of the relationships among objects because they are separated by distance. We have furthermore observed that distance and relative location play no role in such relationships (except in the sense noted above). There appears then to be no difference between processes among objects investigated by the systematic sciences and those studied by geography. All scientific activity is characterized by investigating the nature of relational hookups among attributes of phenomena and among phenomena themselves. The biologist disaggregates the organism into smaller constituent parts, analyzes the manner in which they are connected by processes, and advances laws of relationship that have predictive validity. He may even employ a map to launch his investigation, and to be sure, the parts are separated by distance and form together a network of relative locations. A similar case can be made for other sciences. Alex Inkeles writes in What is Sociology:

...Durkheim like Comte and Spenser also emphasized the importance of analyzing the relationship among institutions and between them and their setting. "One of the main contributions of sociology," he asserted, "lies in the awareness that there is a close kinship among highly diverse social facts which have up to now been studied in complete mutual independence." Each social fact he felt must be related to a particular social milieu, to a definite type of society.²⁴

Distance separation among such social facts, social institutions, and social phenomena appears to be self-evident.

From the above quotation, however, it may be asserted that the social sciences are largely theoretic and do not concern themselves with conjunction with the empirical world of space and time. The meaning of the word space in this context becomes even more problematic. In addition to the two interpretations of space discussed in this paper, a third is here suggested, one that also needs careful analysis although that is beyond the scope of this paper. The spatio-

temporal world is viewed to be the real world of immense varying complexity against which theories in the social and physical sciences need to be tested in order to secure a fit and to establish their theoretic validity.²⁵ This is what Robert McNee means when he points out that economics has become more concerned with the spatial aspects of economic matters.²⁶ Geography in this sense performs the empirical work for the sciences.

Joint sciences such as bio-physics, social psychology etc. are today investigating the nature of relationships among phenomena of varying classes. As the classes of phenomena increase so does the complexity of the relational hookups among them. To accord geography superscience status by asserting that it is uniquely equipped to integrate all classes of phenomena would appear to be presumptuous.²⁷ Relationships among phenomena are determined by the nature of the phenomena and their environments. Geographers would need to have detailed knowledge of the nature of phenomena of all classes that are the subject matter of the special sciences before they could proceed to a limited or total integration. To be sure geographers might well study one particularly important relationship such as the man-environment synergism, but then the concept of space as coexisting order has been waylaid.

In conclusion, space as a timeless co-existing order appears to offer little firm ground for the central concept of the field. The term spatial in this context is an extremely treacherous one. The relational hookups among phenomena are essentially those of the special sciences although investigated at a more empirical level. Nor does the concept of absolute geometric space that is packed within space as coexisting order add a new dimension to relationships among phenomena that might then be investigated by geography.

II Space as Geometry ²⁸

Another interpretation is attached to space in most recent conceptions of the nature of geography that view space as the central core of the discipline. This conception interprets space to be geometry having to do with such geometrically qualified notions as location, distance, direction, area, shape, etc. Most modern conceptions of space as geometry consider it to be one irreducible dimension of reality along with other modalities such as the physical, biologic, psychic, social, economic, and political. Any phenomena, whether a mountain range or a city, any occurrence, whether elections or acculturation, has packed within it all modes of reality; geography studies the spatial mode. It is evident that this interpretation of space does not concern itself with a synthesis of reality (the first concept of space). Rather, geography asks such questions as: what is the nature of the geometric substratum of an economically qualified process, of a politically qualified process, or of social behavior, and economic behavior? Nor is it prepossessed to investigate timeless instants: as the phenomena or occurrence changes so does (or does not) the geometric substratum change. Spatial change and process are therefore considered to be quite important.

Geography, interpreted as the examination of the "where of things" has also enjoyed an extended history, but, until the mid-twentieth century, it represented a minor line of thought. A. Humboldt, F. Marthe, and especially S. DeGeer developed nascent forms of this interpretation of the nature of geography.²⁹ DeGeer

writes in 1923: "...geography is the science of the present-day distribution phenomena on the surface of the earth."³⁰ As we have seen, Hartshorne regards "distributional studies as merely preliminary investigations for the systematic studies of interrelated phenomena."³¹

During the past decade, however, the geometric notion of space has received an increasingly greater share of attention. Today it ranks as one of the (if not the) leading concepts defining the core of geography. Richard Morrill in his new book *The Spatial Organization of Society* asserts that:

Space, spatial relations, and change in space -- how physical space is structured, how men relate through space, and how our conception and use of space changes -- are the core elements of geography.³²

In the glossary of definitions at the back of the book he defines spatial relations as "the ways in which space and distance influence behavior and location decisions".³³ It is clear that space and spatial relations carry different meanings from those of Hettner and Hartshorne.

David Harvey, although wishing to absolve himself from any philosophical stance regarding the nature of geography, holds quite firmly to the geometric notion of space in his book *Explanation in Geography*. In chapter fourteen "Geometry -- The Language of Spatial Form", he writes:

The spatial language adopted should be appropriate for (1) stating spatial distributions and the morphometric laws governing such distributions, and (ii) examining the operation of processes and process laws in a spatial context. (Nystuen, 1963).³⁴

Important to note, before we begin a critical analysis of this concept of space, is that in many current studies both concepts are mutually employed i.e., the geometric basis of process is investigated as well as the process itself. One interesting example of the joint use of these concepts occurs in the brief discussion of the nature of spatial interaction in E. Soja's *The Political Organization of Space*. Soja concludes asserting that spatial interaction will "tend to be greater when the points or people interacting are 'closer' together physically [the geometric notion of space] socio-culturally, and in their functional needs [space as coexisting order]".³⁵ Many other instances of such a joint use of the concepts of space could be cited. In most instances, it seems, the concept of space as coexisting order is subsumed under the concept of space as geometric order; a commitment to the geometric concept often in practice includes working out of the first concept.

One further parting of the ways is entailed by a prior commitment to space as geometry. This secondary choice also has important implications for the nature of geography. The issue is whether geometric space is of an absolute or a relative nature. The major tenets of the theory of absolute space germane to geography are that space is a substance, independent of bodies and changeless, that space neither affects nor is affected by objects, that the structure of space is Euclidian, and that it acts as a medium through which interconnections among objects can be effected.³⁶ Whereas in Newton's schema the ontic status

of space was lodged in the external world, Kant located it in the human subject as pure intuition.³⁷ Here it is even more evident that geometry could not affect objects nor be affected by them; consisting of a way to order experience, it served as a propaedeutic to knowledge.³⁸

Geographers consistently working out the implications of this concept of space can investigate the geometric structure of any particular process, or the geometric structure of a cross section of process. Two avenues are open to them. On the one hand, only description and not explanation of space as geometric order is possible; geometry is accepted as given; locations, shapes, and distances are unique.³⁹ We have previously discussed the nature of absolute space as it was entailed by space as coexisting order. On the other hand, geographers may investigate the nature of space as entirely separate from phenomena by searching for laws completely internal to space that structure space; space in this view also has no effect on objects, nor objects on space. The work of Warntz and Stewart constitute examples of this second avenue.⁴⁰ It is interesting to note that both the proponents of the Kantian thesis and those disavowing Kant who favour the second avenue of thought, hold that space can be examined independently of phenomena.

Relative space is interpreted to be a geometric system of relationships among phenomena. Einstein in his foreword to Jammer's *Concepts of Space* states that relative space is the positional quality of objects.⁴¹ Space, it can be seen here, is an aspect, a mode of reality, rather than a substance. In this view space entails no intrinsic geometry. A geometry, whether Euclidian or non-Euclidian, is simply a logical, deductive system of thought, demonstrating the nature of geometric relationships among phenomena of a certain kind, or among those of a number of classes; it is qualified by the nature of the process under investigation. Our understanding of the nature of objects, processes, and events leads us to an understanding of their geometric substratum, our locating and distributing activities are guided by our understanding of the nature of objects processes, and events, as well as the environments in which they occur. Furthermore, the geometric substratum relates peculiarly to the total nature of these objects and processes; i.e., it may well alter the functioning of the process in question. However, study that concentrates on investigating the geometric aspects of process, or of cross sections of process, relies for its explanatory basis on the peculiar nature of the process in question. A simplified example will illustrate the point. If we wish to explain the distribution of desks in a classroom, and their orientation to the desk of the teacher, we must realize that we are dealing with a pedagogically qualified process, and that to account for its geometric basis, we must need to understand the nature of education. Furthermore, we must understand the particular philosophy of education that the teacher and/or board adheres to. A geometric pattern of desks neatly arranged into a number of straight rows facing the teacher's desk at the front of the room might well represent a geometric embodiment of a curriculum centered, Socratic educational philosophy, whereas a pattern of grouped or scattered desks set up without any particular orientation to the teacher might well represent a child-centered, discovery approach to education. We might conclude that the geometric pattern of desks within the classroom is not well tailored to a particular view of education. For example, a geometric pattern representing a Socratic educational philosophy would jeopardize the functioning of a child-centered, discovery approach to education. In this case, we would recommend

changes to bring the two into conjunction. Similarly in geography the explanatory basis for the geometric patterning of central places on the landscape is lodged in the field of economics, and for the matter, a particular principle of economic development (Feudal, endogenic development).⁴² A similar case could be made for diffusion theory, or the spatial aspects of city growth. Vance has convincingly shown that the spatial structure of land use within a city is wholly contingent upon an economic value system.⁴³ Harvey has demonstrated that a solution to the problem of ghetto formation is impossible within a capitalist value system.⁴⁴ The point is that if geography is defined as the investigation of the geometric consequences of process, the geographer is inexorably led to the systematic science that deals with a particular class of object or of process. We will for the moment hold in abeyance the question of whether the systematic sciences themselves deal with the geometric dimensions of their subject matter.

Rather than focussing attention on the geometric consequences of process, we might well stand the relationship on its head and deal with the process consequences of geometry. Relative location, distance, area, and shape condition and limit the processes in which they are caught up. In this case, unlike the above situation, the process itself would not immediately have to be studied; rather, we would concentrate on the geometric structure. An analysis of whether the geometric structure of the classroom in the above example corresponded to the view of education espoused would represent an example of such a focus. The following examples might represent such a focus in geographic thought. What are the effects of the shape of a downtown on the proper functioning of that downtown area? What are the consequences of the shape of a nation state on the proper political functioning of that state? What role does distance play in social interaction (the example in the first section)? What result does the relative positions of nation states have on the foreign policy of a country? Even though attention is centered on the geometric dimensions of process in the above examples, the consequences must be traced throughout all facets of the process.

As there exist no spatially qualified objects or processes a careful distinction needs to be drawn among spaces and geometries of different kinds: economic location and space measured by cost, political space measured by justice and authority, social space measured by interpersonal and group relationships, psychic space measured by emotions, personality and character, biologic space measured by organic functions and needs, and physical space measured by laws that hold for physical phenomena. Such distinctive geometries are not readily transferable from one realm to another.

It seems highly unlikely that geography can lay exclusive claim to the study of space. Whereas it is true that the social sciences have neglected the spatial dimensions of the processes they investigate, the natural sciences such as geology, physics, biology and oceanography have incorporated spatial analysis into their theoretic structure.⁴⁵ In the non-natural realm geography, with the above provisions, can continue to serve an important function although it is to be expected that the social sciences as they mature will also turn to incorporating spatial analysis into their investigation of a particular class of process.

In conclusion, the recognition that geometry is relative to a process of a

particular kind renders the concept of absolute space untenable. Further, it seems imperative that geographers who view geometry to be the central core of the discipline relate their knowledge of spatial organization quite specifically to the nature of the process under investigation.

Notes

1. Harvey, Explanation in Geography, 209.
2. "Coexist" as it is used throughout the essay is taken to mean to exist together at the same time, not necessarily at the same place.
3. Although varying meanings are attached to the words "objects" and phenomena" they are used synonymously here.
4. David Harvey appears to see these as the main two views of space. Harvey, Explanation in Geography, 207-209.
5. For a historical survey of space as coexisting order consult: Hartshorne, The Nature of Geography, especially chapters 2, 4, 6, 11; also Hartshorne, "The Concept of Geography as a Science of Space from Kant and Humboldt to Hettner", Annals, Association of American Geographers, 40, 97-108.
6. The best treatment of Kant's concept of space and geography in my opinion is that of J. A. May. Consult May, Kant's Concept of Geography, especially Chapters 4, 5 and 6. Other references are Hartshorne, The Nature of Geography, 38-40; Blaut, "Space and Process", Professional Geographer, 13, Number 4, 1961, 1-2. In the philosophical literature it is useful to consult: Jammer, Concepts of Space, 131-139; Wiener, "The Relationship of Space and Geometry to Experience", Monist, 32, number 1, 12-60.
7. May, Kant's Concept of Geography, 91.
8. Ibid., 260. Translation is based on the official Rink edition of Kant's "Physische Geographie".
9. Ibid., 93-98.
10. Fisher, Campbell, Miller, A Question of Place, 111.
11. Hartshorne, Perspective on the Nature of Geography, 19.
12. Hartshorne, The Nature of Geography, 142.
13. James and Jones (eds.) American Geography, Inventory and Prospect, 21-22.
14. Blaut, "Space and Process", Professional Geographer, 13, number 4, 1961, 5-6.
15. May, Kant's Concept of Geography, footnote, 189.
16. Read especially Jammer, Concepts of Space 10-12, 95-126; Blaut, "Space and Process", Professional Geographer, 13, number 4, 1961, 1.

17. Blaut, "Object and Relationship", Professional Geographer, 14, number 6, 1962, 4.
18. Ibid., 4.
19. The term "cosmic glue" is used with apologies to N. R. Hanson. Henson, Patterns of Discovery, 64.
20. Hartshorne, The Nature of Geography, 142.
21. Ibid., 161-162.
22. Hartshorne, Perspective on the Nature of Geography, 40.
23. May, Kant's Concept of Geography, 109-113.
24. Inkeles, What is Sociology?, 6.
25. Hartshorne, The nature of Geography, 273; May, Kant's Concept of Geography, 162-166.
26. McNee, "The Changing Relationships of Economics and Economic Geography", Economic Geography, 35, number 3 (1959), 190. Also quoted in May, Kant's Concept of Geography, 165.
27. May, Kant's Concept of Geography, 192-195.
28. By "geometry" is meant not only a formal axiomatic system, but also any system of relationships or morphology.
29. Hartshorne, The Nature of Geography 84, 127-129.
30. Fischer, Campbell, Miller, A Question of Place, 311.
31. Hartshorne, The Nature of Geography, 84.
32. Morrill, The Spatial Organization of Society, 3.
33. Ibid., 244.
34. Harvey, Explanation in Geography, 191.
35. Soja, The Political Organization of Space, 4.
36. Lacey, "The Scientific Intelligibility of Absolute Space: A Study of Newtonian Argument" British Journal of the Philosophy of Science, 21, 1970, 317-320. See also Blaut, "Space and Process", Professional Geographer, 13, number 4, 1961, 1-3.
37. Blaut, "Space and process", Professional Geographer, 13, number 4, 1961, 1.
38. May, Kant's Concept of Geography, 256.

39. Harvey, Explanation in Geography, 72-75.
40. May, Kant's Concept of Geography, 14.
41. Jammer, Concepts of Space foreword, 13.
42. Vance, The Merchant's World: The Geography Wholesaling, Chapter 7.
43. Vance, "Land Assignment in the Pre-Capitalist, Capitalist, and Post-Capitalist City", Economic Geography, 47, 1971, 101-120.
44. Harvey, "Revolutionary and Counter Revolutionary Theory in Geography and the Problem of Ghetto Formation", in Perspectives in Geography, Volume II Northern Illinois University Press. (Forthcoming)
45. May, Kant's Concept of Geography, 214, 216.

A Cognitive¹ Perspective on Accessibility:
Environmental Factors Important to the
Construction of Images of Accessibility

by

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Introduction

Geographers who study transportation and its spatial implications really have a more fundamental concern, but few of them seem to realize it. One so eminent as Edward Ullman, in discussing the importance of transportation to mankind, wrote:

In order to define the role of transportation on the earth's surface, it is instructive to broaden the concept to the French "circulation", which includes all movement and communication. Circulation, then, is basic to spatial interaction....²

For Ullman, circulation is the key to spatial interaction, which in turn is a fundamental concern of geography. But the key to spatial interaction is not transportation (or circulation); it is accessibility, which may be defined as the ease of movement from place to place. Accessibility is actually what transportation is about.

Consider the problem of economic development. Much theorizing regarding it centers around the strategy of transport network development³ because such development promotes spatial interaction and thus permits easy assembly and distribution of goods and services. This facilitates the development of regional specialization and complementarity, which together lead to greater efficiency and quality in production.⁴ At the same time that regional specialization is increasing, regional autarchy is decreasing, and eventually this process leads (hopefully) to a better-developed economy with a higher standard of living for the region -- all due to increased spatial interaction made possible by increased accessibility. Improving transportation increases accessibility: the friction of distance is reduced, and movement of goods and people from one place to another becomes easier, facilitating spatial interaction. Thus, accessibility is the key to spatial interaction.

In other contexts as well, the true concern of transportation is accessibility. Problems under the general rubric, spatial allocation, which seek distance-minimization solutions in transport networks,⁵ are really concerned with maximizing accessibility. Garner observes: "Clearly the notion of accessibility is closely related to the concept of movement-minimization, especially when this is measured by the costs involved in overcoming distance."⁶

If we accept, then, that the crux of spatial interaction is accessibility

rather than transportation or spatial allocation, we can begin to consider another issue, which is the question of objective versus subjective descriptions of accessibility. Should we be content to describe and measure accessibility "objectively" using mathematical formulae and units such as miles, dollars, etc., or should we investigate accessibility from the subjective point of view? That is, should we examine the individual's perceptions and cognitions of the accessibility of locations? It will be argued here that the latter approach is of greater importance than the former when we are dealing with the accessibility of individuals to various points in space.

That this is a tenable position regarding the concept of accessibility is a belief shared by others. Forbes writes, "Accessibility is something which exists only in the mind of the likely traveller."⁷ And Morrill and Earickson,⁸ in discussing the question of minorities' accessibility to health services in Chicago, report that many Blacks in need of emergency medical treatment bypass the nearest hospital because they do not believe (sometimes correctly) that they will be cared for there. To them, a nearby social service is inaccessible, and their perceptions and cognitions of the accessibility of such services differ markedly from their White neighbors'.

Clearly then, "objective" maximizations of accessibility, such as the location of a social service at the point of minimum aggregate travel for some population, only deal with part of the question of accessibility. The other part is the subjective conceptualization of the accessibility of places by individuals. These subjective conceptualizations we may call images,⁹ and to truly maximize accessibility in such a situation we would also need to study these images of accessibility, for the image of accessibility and the "objective" accessibility must correspond if we are to achieve maximization meaningfully.

Justification for such an approach to the study of accessibility comes not only from the logic of the problem, but from a strong and continuing interest in environmental cognition and behavior in geography. Beginning with the writings of J. K. Wright and W. Kirk, geographers slowly came to realize that there was very often a difference between the real environment and the perceived and cognized environment,¹⁰ and that man's behavior in the environment was based on his perceptions and cognitions of it rather than on that which was really there.¹¹ Moreover, these perceptions and cognitions were often culturally influenced and perpetuated so that they not only varied from one individual to another but also even more markedly from one culture to another.¹² In studying these images, much more about human spatial behavior has been and can be learned. Behavior which seems random or irrational, given some normative model, comes to be perfectly reasonable, justifiable, and perhaps even predictable when the images upon which this behavior is based are examined and understood. To return to a previous example, the Chicago Black's spatial behavior vis a vis social services certainly seems irrational, especially when he is in need of emergency medical treatment, but once it becomes clear that this image of the spatial distribution of accessible medical services differs markedly from the actual distribution, and that there are valid reasons for the nature of his image, his spatial behavior no longer seems irrational. Further, only upon investigating the nature of the image can steps be taken to bring it into closer correspondence with reality, i.e. the spatial distribution of all medical services. We maintain, then, that images of accessibility are important to the individual's spatial interaction and general spatial behavior -- influencing his selections of goals and paths and his decisions to stay or go.

Components of Images of Accessibility

Inherent in the concept of accessibility are two salient ideas, that of movement per se and that of movement to or attainment of some end-point or goal. Hence, it seems plausible to suggest that our images of accessibility may be analyzed into two general components: (1) the space-traversing or movement or path component, and (2) the destination or goal component. From brief introspection, it seems reasonable that when we think about the accessibility of a place, we think about the space we must traverse to reach the place, and we think about the place itself. How easily we think we can traverse the intervening space obviously affects the image of the accessibility of the goal, and it also seems reasonable that our "mental set" with respect to the goal -- our attitude towards it (like or dislike) or eagerness to reach it -- affects the image of its accessibility. Perhaps it seems closer or farther away, or willingness to overcome the friction of distance increases or decreases. Yet it is also difficult to think about the path without considering the goal and vice-versa. Therefore we might also consider an interdependence between the goal and the intervening space (a kind of movement-to-the-goal or path-goal gestalt) as well as the independent effects of each component on images of accessibility.

Let us now briefly discuss each component in the hope that such a discussion will help us to identify their important attributes.

What attributes of the goal influence the image of its accessibility? Many of us can recall childhood experiences in which some very desirable goal, such as an amusement park, beach, or picnic in the country, made the intervening space, and time, between the origin and destination seem enormous. The repetitious "Are we there yet, Daddy?" is testimony to the perceived expansion of intervening space and time and resulting image of reduced accessibility caused by the high desirability of the goal. Oppositely, a reluctance to reach the goal may cause the perceived distance to shrink markedly and contribute to an image of increased accessibility. Space and time pass all too quickly for the small boy on his way to school, the loathsome destination at the end of his journey. Interestingly enough, Stea¹³ and Lee¹⁴ suggest that in adults a desirable goal yields a perceived compression of the intervening space. This apparent contradiction implies that the desirability of the goal can have differential effects which are in part dependent upon the age of the perceiver. In general, however, it appears that an attribute regarding a goal affects the image of its accessibility.

The intervening space is filled with elements which impinge on our senses and affect our perceptions and cognitions regarding that space and therefore our images of accessibility. For example, a space rich in stimuli to occupy the traveler should seem to be smaller, or so Lee¹⁵ suggests, using an analogy between filled and unfilled space and filled and unfilled temporal intervals, the latter presumably common to perception studies where filled temporal intervals are consistently judged shorter than empty ones of equivalent duration. Considerable substantiation of Lee's speculation is provided by Hansen¹⁶ who found that overland bus passengers in Mexico consistently judged a sinuous, scenic mountain route to be shorter than a straight, flat and relatively

uninteresting route of equivalent length. However, the assertion that any space rich in stimuli will seem smaller than an empty space of comparable size may be too simplistic, for there is almost certainly more to an image of accessibility than estimating the distance to be traversed, even though a large and complex set of stimuli affect this estimation. It is not enough to say that the stimuli to be perceived are many and complex, and so the distance estimate is affected; we must also consider the nature and significance of these perceptions. If these stimuli are perceived as barriers, for example, accessibility will be lessened, no matter what the perceived distance is, because, very simply, the space becomes more difficult to traverse. Moreover, these barriers are not only those we commonly recognize as physical impediments to movement such as topographic barriers, bumpy roads, lack of sidewalks, and congestion but also consist of stimuli we perceive as barriers either collectively (stoplights, stopsigns, and other signals which our culture has taught us to perceive and respond to as barriers to movement, if only temporary and permeable ones) or individually (slums, large dogs, swamps, etc. which we have individually learned to perceive as barriers and which may or may not be similarly perceived by others).

Consideration of the path-goal gestalt focuses on the interaction of the image of the goal with the image of the intervening space. Perception and cognition of the goal may positively or negatively reinforce the perception and cognition of the intervening space, as suggested in the above discussion of childhood attitudes toward goals and consequent perception of intervening space. Or one may override the other. Or perhaps a particular image of one part of the gestalt may cause a change in the image of the other part in a manner similar to that which occurs in cognitive dissonance, and if so, we may have another fruitful tack for examining images of accessibility. Writing on cognitive dissonance, Festinger states:

Imagine the situation of a person who has carefully weighed two reasonably attractive alternatives and then chosen one of them -- a decision that, for our purposes is irrevocable. All the information this person has concerning the attractive features of the rejected alternative (and the possible unattractive features of the chosen alternative) are now inconsistent, or dissonant, with the knowledge that he has made the given choice. It is true that the person also knows many things that are consistent or consonant with the choice he has made, which is to say all the attractive features of the chosen alternative and unattractive features of the rejected one. Nevertheless, some dissonance exists and after the decision the individual will try to reduce the dissonance.

There are two major ways in which the individual can reduce dissonance in this situation. He can persuade himself that the attractive features of the rejected alternative are not really so attractive as he originally thought, and that the unattractive features of the chosen alternative are not really unattractive. He can also provide additional justification for his choice by exaggerating the attractive features of the chosen alternative and the unattractive features of the rejected alternative. In other words, according to the theory the process of dissonance reduction should lead, after the decision, to an increase in the desirability of the chosen alternative and a decrease in the desirability of the rejected alternative.¹⁷

So, for example, if we have a strong desire to reach some goal, but are reluctant to make the journey for some reason, the decision to reach the goal may help to convince us that the journey won't be so arduous after all, whereas a journey of similar effort might be regarded as a sufficient deterrent to reaching a less desirable goal. Conversely, an easily traversible space may help us decide between what would otherwise be equally attractive goal alternatives by making one alternative more accessible and perhaps thereby enhancing its desirability.

Lest the reader infer that images of accessibility are constructed from a boundless universe of informational inputs, we ought to point out that any image of accessibility is likely to be broadly influenced and circumscribed by culture (in the anthropological sense). In general, culture affects our thoughts and actions including our behavior in and use of space.¹⁸ For example, our choices of destinations (goals) -- the supermarket and not the bazaar, the used car lot instead of the camel dealer -- and our motives in choosing these goals are largely products of a particular kind of acculturation. It also seems reasonable that an individual's cognitions regarding the traversing of space to reach the destination will incorporate consideration of such factors as technology and topography. Technology is a primary subsystem of any cultural system, and one of its subsystems, transportation technology, specifies the number of alternative modes of transport available (within a given culture) for overcoming the friction of distance. Similarly, topography will require appropriate alternatives in transport mode if a particular kind of topography is to be traversed, and perhaps constrain movement where technology is inadequate to negotiate certain terrain.

Hence, while we may investigate images of accessibility through their goal, path, and goal-path components, we must keep in mind that these components are in turn subject to broad constraints such as those discussed above. However, within the limits of these constraints, the formation of the image of the accessibility of a given location is likely to vary a great deal from one individual to another. These interpersonal variations in images of accessibility are brought about by variations in the correspondence between the behavioral environment and the geographic environment (see footnote 10), the former being a transformation of the latter through the prisms, lenses, and filters of perception and cognition. But we can expect these variations to be within the limits of a number of external constraints.

Notes

¹This study will be cognitive rather than simply perceptual because cognition refers to all modes of knowing and thinking and includes attitudes and beliefs, which are frequently gained through means other than direct experience, whereas perception is restricted to the processes of direct experience. Our cognitions involve the processing of information gathered from all sense modalities directly experiencing the environment, but they also include indirect experience from various sources and media. In short, cognition is a broader, more inclusive term than perception and is more appropriate here.

²Edward L. Ullman, "The Role of Transportation and the Bases for Interaction," in Man's Role in Changing the Face of the Earth, ed. by W. L. Thomas (Chicago: University of Chicago Press, 1956), p. 852.

³This is not to say that the development of an adequate transportation system is the only theoretical strategy for economic development. There are many, but space does not permit discussion of them. Instead, the reader who wishes a brief overview may refer to R. T. Gill, Economic Development: Past and Present. (Englewood Cliffs: Prentice-Hall, 1967).

⁴Ullman, "The Role of Transportation."

⁵Allen J. Scott, An Introduction to Spatial Allocation Analysis, Commission on College Geography, Resource Paper No. 9 (Washington, D. C.: Association of American Geographers, 1971) provides a good introduction to this approach.

⁶Barry J. Garner, "Models of Urban Geography and Settlement Location," in Socio-Economic Models in Geography, ed. by Richard Chorley and Peter Haggett (London: Methuen, 1967), p. 305.

⁷Jean Forbes, "Mapping Accessibility," Scottish Geographical Magazine, LXXX (1964), 13.

⁸Richard Morrill and Robert Earickson, "Effects of Race, Income, and Religion on Hospital Travel," in Slum Medicine: Chicago's Apartheid Health System, ed. by Pierre DeVise, et al (Chicago: Community and Family Study Center, University of Chicago, 1969).

⁹Roger M. Downs writes on p. 15 in "The Cognitive Structure of an Urban Shopping Center," Environment and Behavior, II (1970): "It has become customary to refer to the image as being the product of the process of collecting, coding, and evaluating information about the spatial environment."

¹⁰Specifically, J. K. Wright introduced the term "geosophy", which he defined as the study of "the nature and expression of geographical ideas...both true and false of all manner of people..." on p. 12 in "Terrae Incognitae: The Place of Imagination in Geography," Annals of the Association of American Geographers, XXXVII (1947). W. Kirk introduced geographers to the concept of the behavioral environment as distinct from the geographic environment in his seminal article, "Historical Geography and the Concept of the Behavioural Environment," Indian Geographical Journal, Silver Jubilee Volume (1952). He borrowed this distinction from an eminent gestalt psychologist, K. Koffka, who articulated it no later than 1935 in his Principles of Gestalt Psychology, (New York: Harcourt, Brace and World).

¹¹It is worth noting that there is a school of philosophy which is of unquestionable relevance to perception and cognition studies in geography and which can therefore serve as a philosophical justification to complement the pragmatic justification discussed in the text. This school of philosophy is phenomenology, which holds that, among other things, "there is no single, objective world; rather there is a plurality of worlds -- as many as there are attitudes and intentions of man." So writes Edward Relph in "An Inquiry

into the Relations between Phenomenology and Geography," Canadian Geographer, XIV (1970), 194. A Phenomenological perspective, whether explicitly stated or not, is at the heart of all geographic studies of perception and cognition. It is also worth noting that a number of psychologists whose primary concern is perception have adopted a phenomenological viewpoint regarding the nature of perception. For an excellent statement of this view, see William Ittelson, Visual Space Perception (New York: Springer, 1960).

¹²For a truly excellent exposition of the influence of culture on environmental perception and cognition, see David Lowenthal, "Geography, Environment, and Imagination: Towards a Geographic Epistemology," Annals of the Association of American Geographers, LI (1961), 241-260.

¹³David Stea, "On the Measurement of Mental Maps: An Experimental Model for Studying Conceptual Spaces," in Behavioral Problems in Geography: A Symposium, Northwestern University Studies in Geography No. 17, ed. by Kevin Cox and Reginald Golledge (Evanston: Northwestern University Press, 1969), p. 240.

¹⁴Terence Lee, "Perceived Distance as a Function of Direction in the City," Environment and Behavior, II (1970), 50.

¹⁵Lee, "Perceived Distance."

¹⁶Ingrid Hansen, "Perception of Traveled Distance," (unpublished manuscript, Clark University, 1968).

¹⁷Leon Festinger, "Cognitive Dissonance," in Frontiers in Psychological Research: Readings from Scientific American, ed. by Stanley Coopersmith (San Francisco: W. H. Freeman, 1966), p. 209.

¹⁸Two books by Edward T. Hall are concerned with this theme at great length: The Silent Language (New York: Doubleday, 1959), and The Hidden Dimension (New York: Doubleday, 1966).

URBAN RUNOFF AND WATER-QUALITY PROBLEMS OF AN URBAN HYDROLOGIC RESPONSE

by

Alan L. Marcus

Urban water resources are physically and economically influenced by storm-runoff volumes. Storage, transportation and quality control of this volumetric resource require a series of planning decisions which must be viewed within an urban hydrologic perspective.

Urban development produces a unique range of hydrologic reactions of which an increase in the magnitude, duration, and frequency of storm-runoff flow is a major element. This increase in volume of flow is associated with an increase in water-quality degradation from combined sewer, separate storm sewer, and sanitary sewer overflows. Recent studies have shown that runoff from storms within the urban environment often reach degraded levels before entering drainage systems from pollutants at the surface and in the atmosphere (1). Increased volumes of storm runoff produce critical problems with storage and transportation capabilities of systems designed for less frequent flows. This is directly related to the use of design models based on derived rural watershed parameters. Only recently has the need for reevaluation and implementation of an urban hydrologic cycle perspective been realized.

Urbanization and land surface changes are intricately related. Urbanization implies an accompanying change in the characteristics of the associated watersheds. Obvious modification of the land surface character, cover and surface configuration are the end product.

These modifications significantly influence the hydrologic environment and hydrologic responses of the watershed. Urbanization reduces the opportunity for infiltration, transportation, and evaporation and increases the degree of imperviousness. Urban growth is similarly associated with the development of storm drainage systems which can alter the surface drainage pattern and reduce the lag-time, or time of concentration of flow. These processes are manifested in a concentration of storm water flow with sharper, shorter, and higher peak flows than those equated with natural runoff.

There are marked increases in runoff yields and volumes and in annual discharge. These accelerated and concentrated flows introduce a serious situation where smaller, more frequent precipitation amounts can now be associated with higher, more frequent stormflows which may even approach flood flow levels. This is clearly demonstrated by an examination of two similarly-sized watersheds near Palo Alto, California in 1963 (10, p. 179). The Sharon Creek Basin (urban) and the Los Trancos Creek Tributary Basin (rural) received a comparable quantity of precipitation during the storm of January 29 - February 1, 1963:

Flow in Sharon Creek, the developed basin, started two hours after the incidence of precipitation and totaled 2.69 inches during the storm period, or 58 percent of 4.66 inches of rain,

but runoff in the Los Trancos Creek Tributary, the natural basin, did not start until 21 hours after the rain started and totaled only 1.58 inches, or 36 percent of the 4.39 inches of rain (10, p. 179).

also,

After development of Sharon Creek Basin, which was started in 1961, the discharge increased from 5 or 10 percent of the annual precipitation to more than 30 percent (10, p. 80).

Such increased runoff volume implies a greater flood potential within the urban environment. The enlarged flow acts as a transportation medium for urban-produced waters which are eventually washed into existing urban-receiving water sources. The conversion of previous land to impervious urban surfaces such as airports, roofed structures, parking lots, shopping areas, roads, walks, and streets helps to produce this augmented, faster runoff with an additionally-increased scour pollution ability. The fall of precipitation cleanses the urban atmosphere of pollution substances, physically washing out particulate matter and dissolving out contaminants. This accumulated contaminated precipitation forms urban runoff, which receives additional pollutants from street refuse. This litter includes fecal droppings from animals, dust and dirt, sidewalk sweepings, building and demolition wastes, material eroded from pavements, as well as refuse from individuals. The degraded runoff collects in catch basins where it often becomes a source of "first flush" or "shock pollution":

The studies disclosed that the liquid remaining in a basin between runoff events tends to become septic, and solids trapped in the basin take on the general characteristics of septic or anaerobic sludge (1, p. 4).

This catch basin residue liquid is displaced by runoff water in a ratio of one-half the volume per equal volume of added runoff. The BOD of catch basins, even from minor storms, in the American Public Works Association Study, was found to be seven and one-half times that of the runoff which had been in contact with street litter.

Chemicals used in ice control situations, as well as those used for pesticide, herbicide, insecticide, rodenticide, and fertilizer purposes can develop a serious pollution potential. A national sampling survey has shown chloride levels of expressway runoff, during periods of snowmelt, reaching a maximum strength of 25,000 ppm (1, p. 5). As a comparison, the average chloride in sea water is only 19,000 ppm. These augmented volumes of storm water runoff are thus found to include large quantities of pollutants, which introduce serious water-quality degradation levels prior to reception by storage and transportation facilities.

Such enhanced physical processes present critical economic difficulties for the community transportation and storage complexes. Transportation of urban runoff involves a wide selection of systems. Approximately 1.2 percent of the total land area of the United States contained 11,500 sewered communities serving 125 million people by 1962. About 65 percent of these urban communities involve separate sewers. The appeal of this system to smaller urban areas implies smaller

conduits for the independent servicing of sanitary sewage, with roadside gutters for storm water sewage. The presence of separate storm sewage conduits is a function of design, monetary, and fiscal policies. A two-fold pollution potential exists for separate sewer transportation systems. Untreated storm water runoff introduces increasing levels of contaminants directly into receiving waters. These systems will have a tendency to overload from brief, but intense precipitation, and will pollute reception areas.

Thirty-five percent of urban communities, or 54 million people, are served by combined sewers or combinations of combined and separate systems. The combined sewers employ a common collector for sanitary and storm-water sewage. During dry weather, combined systems divert intercepted drainage and all sewage to treatment plants. During storm periods "an untreated volume of the mixture, 100 - 200 times larger than that treated, may overflow to the receiving stream" (6, p. 7). Combined systems are usually designed to accommodate no more than 1.5 to 5 times the "normal" dry weather flow (6, p. 7).

When this capacity is exceeded, the system will overflow into receiving streams. The treatment plants are seldom large enough to handle all the volume from heavy storms, and a 95 percent overflow of sanitary sewage has been claimed during some bad weather periods:

During the 1964 Christmas floods, many of the sewage treatment plants in the Pacific Northwest were completely inoperative (6, p. 8).

Diversion of flow at critical sections, to provide a load relief, have been instituted in some communities on an extremely localized nature. Urban runoff transportation systems concentrate, augment, and divert volumes and degraded levels of storm water flows into the storage reception system.

The fault of these inadequacies lies in the initial design of the systems. The formulas and models utilized were based on statistics drawn from rural watershed criteria. The inputs from an urban environmental response differ greatly from these design models. The storage systems for reception of urban runoff are also guilty of inadequate design. A storage system of lakes, reservoirs, or in-channel storage involves a series of unique environmental responses.

Reservoirs and lakes are used for a multipurpose design. These systems are utilized for flood control, water supply, and various other storage purposes. However, reception of urban runoff through numerous inlets results in the introduction of vast quantities of effluent and increased water volumes. Eutrophication (nutrient buildup) is often the result of this relatively stationary storage system. This process is greatly enhanced by discharge of organic wastes during intense runoff periods. Even residual wastes, after significant levels of treatment, can provide a critical pollution potential:

It has been a frequent experience that urban development has been followed by symptoms of increased lake productivity, especially when development has included the disposal of sewage in lakes (4, p. 150).

Municipal sewage is also found to be a major contributor to increased nutrient levels in lakes. For example, most of the effluent entering the chain of lakes at Madison, Wisconsin was from domestic sources (4). Similarly, Lake Zurich, Switzerland experienced a 55 percent contribution of dissolved phosphorous from sewage and sewage effluent (4). During heavy, prolonged storms the augmentation of flow volumes can exceed rurally-based design flood levels.

Channel storage involves a separate set of processes. River storage is a non-stagnant process where levels of pollution and flood volumes are distributed throughout the system. Waste from urban and industrial sources seriously degrade quality and can eventually kill the river's utility. An example of such a "death" is evidenced by the Merrimack:

Aesthetically, the Merrimack is hardly a river at all. And that is the real tragedy. The river is not so much a detriment as a nullity; it has been polluted for so many generations that people avoid it by habit and not by design. From the air, the Merrimack is a no-man's land, barren of activity. Only short portions are safe for human contact, and in some reaches the river is now suitable only for the transport water. There is no rapport possible with the water. Dangerous and offensive, the Merrimack has become a non-river (13, p. 11).

The utility of a river is further degraded within the urban environment. Urbanization tends to increase the flood potential for a given basin. Channels receive capacity-exceeding flows much more regularly than the expected one-and-a-half to two-year recurrence average. These problems are directly related to the failure of past model designs to accurately predict present and future process rates.

Planning for water use involves a series of predictive design models. These watershed studies involve one of two procedures (10, p. 216). The first method uses synthetic techniques to predict the hydrologic conditions of the watershed prior to urban development. The second method employs a comparison between existing urban and rural watersheds which are assumed to be hydrologically similar, except for the effects of urbanization. Both of these study types require the selection of certain hydrologic properties for the evaluation of urban effects.

Most of these investigations are concerned with urban development and its effects on hydrograph characteristics, for instance, lag-time or peak discharge. Design models, such as the Rational Method, determine peak flow, while studies utilizing the unit hydrograph approach determine total storm hydrographs. All of these design systems employ a wide selection of predictive equations. The equations require large data banks for accurate forecasts. The necessary data is often not available or unobtainable, however, within the limited time allowed:

To state the situation very simply, development of improved design methods has been stymied for decades because of a lack of a suitable national field-gauging rainfall-runoff program. Mathematical models exist which could quite likely

lead to vastly improved design methods, were the data available for their calibration and refinement. There is a real need to account for storm time and space variability in urban water developments, including storm drainage, but the impetus for research on metropolitan storms is inhibited so long as no tangible progress is made in the collection and analysis of rainfall-runoff data (11, p. 623).

The equations employed in model design involve empirical parameters which utilize actual data for delineation. Too often such parameters are adjusted from non-urban research or early urban research, such that the predictive value of the equations seriously diminishes. For example, the Rational Method, an equation utilized for storm sewer design, is expressed by the following equation:

$$Q = CIA$$

Q = discharge
C = coefficient of runoff
I = mean intensity of rainfall in inches per hour
A = drainage area in acres

Two thirds of this important equation, C and I, are empirically adjusted parameters, where accuracy of data collection is the deterministic variable. These equations raise another important question: can such "simple" and "elegant" models accurately predict the real world such that design formulation will facilitate actual real-world capacities? Past performances and data demonstrate a negative reply. Present design capabilities have been continually shown to be inadequate. What is required is a design formulation which can meet these criteria.

To meet this need, research models, if employed, must be enlarged in scope to include a more complete range of urban hydrologic responses based on more sophisticated and inclusive data. Control measures must similarly be used to reduce the total input volume such that existing systems may be better utilized.

What are the elements of this design? Recent studies, as those conducted by Brownlee (1970), Brater and Sangal (1969, and in 12) and Waananen (1969 and in 12) demonstrate the realization that urban water problems must be viewed from an urban hydrologic process-response design. Elements of an urban hydrologic response to storm water runoff are demonstrated to involve an understanding of precipitation intensity and duration, interception storage, infiltration capacity, depression storage and detention, conduit and gutter storage, as well as overland flow. These parameters are investigated with respect to empirically-derived urban data. Equations that are formulated are based on relationships unique to urban environments. The results are, however, limited to the areas of study, since universal application of uniquely-derived data can result in false assumptions and conclusions. The techniques can provide a universal application with which a more encompassing data bank can be achieved. This urban data will result in improved recommendations for storage alternatives such as increased artificial, natural, and mined storage; transportation alternatives such as large storm sewers, conduits, and tunnels; and quality control alternatives involving artificial or natural treatment processes.

Measures based on current research which control runoff volumes and effluent levels must also be considered necessary design techniques through which present systems can be better utilized. Three approaches have been suggested by the Federal Water Quality Administration (7, p. 11); they include: a reduction in total runoff, a reduction in the rates of runoff, and environmental policy. The first two measures suggest structural control devices that would eliminate or deplete runoff in the urban area or impoundments, or catch basins, to attenuate flows and reduce runoff rates (7, p. 11). The implementation of an upstream retention program is also recommended.

Environmental policies would entail regulations, enforcement and performance standards; improved maintenance practices would be effective. Regulations and enforcement procedures to control urban litter and general sanitary conditions of public and private areas would be implemented. Performance standards in subdivision regulations for contractors to control soil erosion and litter during periods of land development are also necessary criteria. Open storage and drainage regulations for commercial and industrial areas are important, as well as improved street cleaning and drainage channel maintenance for the reduction of storm water pollution levels (7, p. 12).

A pricing policy for pollution abatement is an additional alternative for regulation. Industrial and principal polluters could be charged (taxed) in relation to selected water quality standards whereby upper limits of the concentration of waste and individual contributions of effluent could be determined. These costs of damage could then be set relative to the costs of quality improvement and assessments assigned:

"The effluent charges procedure would have the advantage over other possible techniques of permitting each waste discharger to adjust in the most efficient way for his particular circumstance. Individual discharges could withhold wastes in temporary storage, adjust production processes, change raw materials, treat wastes, cut back on production, change the character of their output, pay the charge, or use a combination of these procedures. The charge required to achieve this standard indicates the incremental costs achieving the standard (8, p. 141).

This primary policy can be used to achieve stream water quality standards which are at the lowest resource or economic cost (8, p. 141). Tax-break incentives, another alternative, are found to be "blunt instruments for water-quality management (8, p. 178); they are inefficient and potentially expensive to the taxpayer. These environmental control policies rely on the accuracy of the available research data. Thus, the entire range of water quality control and urban hydrologic responses can be seen to be dependent upon basic research and data collection, which has been demonstrated to be less than satisfactory in past investigations.

In conclusion, enhanced storm runoff, a result of urban hydrologic responses, presents a quality-control problem. This volumetric increase is a product of urban development which concentrates storm water discharge in sharper, shorter, and higher peak flows. It is associated with a degraded water quality from surface litter and combined sewer, separate sewer, and sanitary sewer overflows.

This effluent discharge from inadequate transportation facilities into the receiving storage system of rivers, lakes, and reservoirs presents serious pollutional situations where water resource utility is noticeably diminished. These urban processes are a direct result of inadequate design based on models whose information systems are inaccurate. Past model design, which employs empirically-derived equations, has utilized rural or early urban research data. Present studies demonstrate the realization and the necessity of more relevant and more encompassing data banks based on urban hydrologic responses. This research, in conjunction with a sound, environmental policy of regulations, enforcements, practices, and pricings can lead to a resolution of the current crisis situation within the urban environment.

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ONTOGENETIC AND PHYLOGENETIC PERSPECTIVES ON CARTOGRAMS

by

James W. Cerny

The ontogeny of every organism repeats in brief . . . its phylogeny.
Microsc. Jnl., July 1972, 185.

The first explicit description of cartograms in the geographic literature is by Raisz (1934), though Hunter and Young (1968) point out that the idea can be traced back to about 1870. Raisz wrote, "if we . . . discard altogether the outlines of the country, and give each region a rectangular form of size proportional to the value represented, we arrive at the rectangular statistical cartogram." Wright (1938), a few years later, had a quite different, more general, conception of a cartogram as a statistical map distinguished by less refinement of data for the given scale than the detail found on a normal map. Since these beginnings, cartograms have appeared with increasing frequency and diversity in the scientific literature, in newspapers, and even on postcards, though they are almost completely ignored by cartographic texts.

The nomenclature remains confused, however, and it is doubtful that there is an accepted definition. All cartograms involve a transformation of space, without direct relation to the formal problem of projecting the geoid as a flat surface. Ordinarily this is a transformation of discrete areas proportional to the magnitude of some variable, usually but not always a variable other than physical area. There is usually a strong effort to preserve the shape of the unit areas and the total area being mapped, and efforts are generally made to preserve normal contiguity relationships. Tobler (1963) approached cartograms as maps based on some unknown projection, one which "will accommodate expanding and contracting polymorphic shapes in contiguous and mutually adjusting patterns." For most cases an analytic solution is not feasible, requiring the use of less rigorous trial-and-error approximation methods that preclude unique solutions or maps.

The remainder of this paper will focus on ways of distinguishing order in the set of maps called cartograms, both to understand cartograms better and for the applications the results may have to maps in general. Cartograms have appeared in various contexts. Some authors have unobtrusively used them to make a point with graphic force, testing the "graphicacy" of the reader (Balchin and Coleman, 1966). Others have presented their cartograms as methodological or pedagogical tools (Hunter and Young, 1968). Emphasis is on the individual map and how it was made rather than on the relationship of the map to the set of cartograms. No classification of cartograms has been attempted and until that

is done, the process of identification, or placement of the individual cartogram with respect to others, is without a reference framework, making statements about relationships difficult. To borrow from biology, this has been an ontogenetic approach, tracing the development of individual cartograms, as contrasted to a phylogenetic approach, looking at the evolution of this map type.

A simple way to classify cartograms is to select the important characteristics and divide the set of cartograms according to greater and greater refinement. Subdividing on the basis of whether outlines are square or smoothed, and then on the basis of cultural detail, mapping of a second distribution, discontinuity of deformation, non-contiguity, etc., produces at the final level categories that have become distant in the branching structure but which may appear close in appearance (figure 1). Ordering the criteria in a different way or use of the criteria by a different person would produce a different set of relationships. Further, there are many kinds of maps that do not fit neatly in any place, e.g. Getis' cartogram to focus the eye on Pennsylvania (Bunge, 1966) is different due to its orientation and yet it is still physical area that is presented. In some cases it is difficult to decide whether the transformations of area are discrete or continuous. For example, Wallingford's "New Yorker's Idea of the United States of America" (Tobler, 1963) could be considered a cartogram with areas proportional to familiarity, thus linking mental maps and cartograms. Similarly it is not clear how cartograms are related to isochrone maps or to log azimuthally transformed maps, nor how these are related to each other. In some cases a log azimuthal transformation may reflect the preference and knowledge a group has for the local area and could be one way of representing a composite mental image. The same comments may be true of those isochrone maps that have the base transformed proportional to travel time. The existence, though not the nature, of some of these linkages has been suggested in Figure 1.

By way of exegesis it may be worthwhile to consider Gould's type of mental maps in more detail. In some respects the mental maps of the type Gould and White (1968) have produced are quite like Wallingford's map. They both try to show how people view the world, though one is for an individual (presumably) and the other is a set of composites for groups. Leaving aside the way Gould and White analyzed their data and concentrating just on the presentation of the results, it is not clear that an isopleth map is the best or only way to present the data, for it implies a continuous surface and gradients that may not, in fact, exist. Further, the scores must of necessity be arbitrarily located within the areas they represent, which will affect the surface to some degree, as will the interpolation algorithm used. If Gould and White had treated their data as discrete and had deformed areas so that they were proportional to the perception scores, a much more forceful map of preference would have resulted, and perhaps one that would better reflect a mental map. There seems to be little conceptual difference between making a cartogram of easily measured data like income, votes, and race, and more difficult to measure quantities like preference, amenity, and familiarity. From a cartographic viewpoint, the preferred order of representation of Gould-type mental maps probably is cartogrammetric, choroplethic, and, last, isoplethic.

To pursue these relationships or linkages it may be helpful to borrow again from biology. Numerical taxonomic methods of classification based on morphology

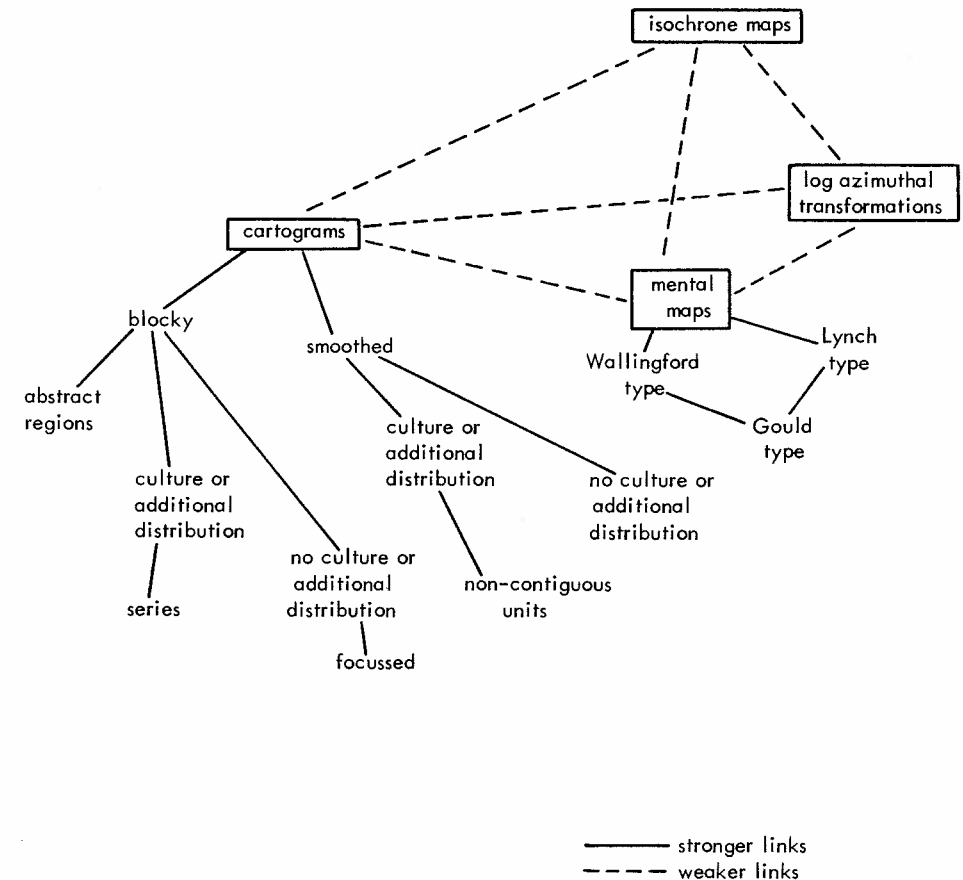


Figure 1. An Intuitive Classification of Cartograms.

rather than hypothesized lines of genesis may be a better approach than the intuitive one (Sokal and Sneath, 1963). There is no satisfactory way to decide on a hierarchy of criteria that will be assured of producing an intuitively and intellectually satisfying classification of cartograms because it presupposes an *a priori* classification. What is being sought are groups of cartograms that are most alike in form and which can be identified by assigned names, or nomenifers, for the taxa, indicating the nature of each group as a whole, though not necessarily the nature of any specific member. This would not be the first attempt to apply numerical taxonomy in geography, for there is already a large literature on its use in delimiting homogeneous regions. Nor would this be the first attempt to classify maps, but it may be one of the most objective attempts and an approach that could be successfully extended to all maps. Explicit classifications of maps are rare and all proceed on a basis of logical subdivision that assumes a set of criteria for classifying maps. Recent examples are Chorley and Haggett's (1965) discussion of trend surface models and Tobler's (1962) parametric map classification. With cartograms there is no reason to proceed in this manner, for there are no "obvious" criteria to select for subdivision that can be vigorously defended as to priority and precedence. This discounts the experience of the taxonomist and places reliance on the morphologic characteristics of the cartograms themselves. To achieve a stable unbiased classification it is important to initially select as many characteristics and as many subjects as possible. Relatively standard grouping procedures can then be used, though there are several critical decisions in the analysis. Of greatest importance, the results must be plausible and interpretable.

A numerical taxonomic analysis was performed to classify the set of cartograms. The operational definition of a cartogram that was used for this study was any map that involved multiple discrete spatial transformations; factors of contiguity and shape were omitted from the definition and were treated as cartogram attributes. A total of ten attributes were used, Table I, all treated as dichotomous variables. The total population was not sampled, but seventeen cases were used, counting series of closely related cartograms as single cases or operational taxonomic units. Because no logical basis appeared to exist for giving weights to the attributes, they were all treated equally. The data matrix was subjected to a principal components analysis to insure parsimony, using the UCLA Biomed program BMDX72. Five factors were extracted that accounted for 88 per cent of the total variation and factor scores served as input to a single-linkage centroid grouping algorithm, HGROUP, a modified version of the routine discussed in Veldman (1967) that uses Ward's notion of an objective function. The distance in taxonomic space between joining taxa was used as the measure of similarity between groups. Large increments in the taxonomic distance occurred with the formation of five and four taxa, so as a compromise between uniqueness and generality, the results at the level of four taxa or groups were studied in detail.

The results were disappointing in that they did not make any interpretable sense. Most of the cartograms ended up in one large group, including some maps that seemed to be very disparate, with one or two not particularly unusual seeming maps in each of the other three groups. Reconsideration of the procedure was inconclusive as to the validity of the basic approach, but several possible improvements will be tried before abandoning it. First, more careful identification of the morphologic characteristics is necessary, and related to that, more

Cartogram Attributes

1. more than 25 components.
2. shape of components preserved.
3. larger regional shape preserved.
4. transformation proportional to some distribution.
5. mapping of supplemental distribution on cartogram base.
6. addition of physical or cultural information.
7. more than 75 per cent of contiguity relationships retained.
8. part of a series of cartograms.
9. rectangular components.
10. special orientation of components.

TABLE I.

cartograms should be sought for inclusion in the analysis. Equally important is reconsideration of the type of dimensional analysis used prior to grouping. There exist a number of algorithms for dimensional analysis that are expressly designed to work with nonmetric data, e.g. Lingoes and Guttman's (1967) SSA3 program for smallest space analysis. Alternative grouping procedures are also worth considering, although past experience with HGROUP indicates it is a very satisfactory method. With these changes it may be possible to make some definitive statements on the phylogeny of cartograms, and from that point to extend the phylogenetic analysis to a wider variety of maps.

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A SEED TO BE PLANTED IN A FERTILE FIELD OF POLITICAL GEOGRAPHY

Oh functions and forms of yesterday
 will you yield what we need today
 a thoughtful framework is our aim
 to understand why things aren't the same
 to feel the action of the change
 to know and feel and act is our quest
 "must there be all of that for a Ph.D.?" you jest!
 "Where is the theory, the elegant model?" you say.
 Tis not our aim! Tis not our game!
 We seek the art -- to understand and artifact
 We seek the reasons for its being and its changing
 Where to look -- out there, of course!
 and within as well.
 We look within to find our guide
 and look without to find the posts
 the arranging of those posts we long to know
 how they contain so much yet let so much go
 Who passes through? Who stays constrained?
 We seek to know why some are pained!
 Why is it that some may move and some must stay
 Yet all are children at their play
 "Boundaries of a bygone day" says one
 Another claims "Those boundaries are our cherished right!
 Can't you tell black from white?"
 We ask the baby -- he says, "I can't."
 We ask the child -- he says, "perhaps"
 We ask the man -- and his reply,
 "You see those lines so nicely drawn,
 does it matter if children are the pawn?"

Will the answer be a stifled yawn?

Bob Morrill
 Robbie Smilnak

THE AGE OF CLEANER WATERS: AQUARIUS CONFERENCE, 1972

Geography 150, commonly known as Aquarius, has been under development here at Clark for the past three years by Bob Kates, Dick Howard, Dan Dworkin, and Roger Kasperperson. Aquarius is a city of 175,000 people located in western Polluta on the Neverclean River. A student in the course plays the role of a member of a water resources planning team for the city, each person serving as a specialist in either water supply, water quality, flood control, or recreation planning. Each team gets to evaluate its plan by use of a computer simulation of events in Aquarius during the coming fifty years.

The success of Aquarius at Clark resulted in several inquiries from other institutions about the possibility of using the course. To facilitate this, a group of potential users from eight other universities met at Clark from 24-27 January, 1972, to acquaint themselves with Aquarius. The participants worked through the planning tasks themselves, heard Clark students present their plans at a mock city-council meeting, and attempted to evaluate various elements of the course.

This semester Aquarius is being offered at six other schools with some 90 students participating. Still other schools will be adopting the course next year. Anyone interested in the Aquarius program should contact one of the above at the Graduate School of Geography, Clark University, Worcester, Massachusetts 01610.

Tom Hankins

SYMPOSIUM: BLACK PERSPECTIVES ON GEOGRAPHY March 9-11, 1972

Can geography, as a set of concepts and tools, have a relevance toward the solution of the problems of the black American community? This question is a frequent topic of conversation among the black graduate students in geography at Clark today. It is often reflected in the choice of dissertation and theses topics which black students express a desire to research. And, as often as not, it is implicit in the conflict that sometimes occurs between the black students and departmental faculty and administration.

In fact, such conflict was perhaps the major impetus on the part of black students to organize a symposium to air the whole issue. The symposium took place between March 9th and 11th, 1972, under the title The Present and Future State of Geography: Some Black Perspectives. The brief synopsis of what the talks were intended to cover and which accompanied the agenda was the following:

What are the prospects for increasing the population of black professionals and scholars in the field of geography? How can the geographic discipline aid in the solution of the problems of the larger black community? What schools should we encourage black students interested in geography to attend and what should be done in the curriculum at those schools to make them more sensitive to the needs of those students?

These and related questions will be looked at in depth. Similarly, we will hear and question some current research being conducted by blacks in the field. And also consider more theoretical questions such as, 'Are the current models in use adequate for our needs and goals?' and 'Can we delineate a black perspective in geography?'

The symposium sessions were attended by a number of black geographers who are of some note in the field and also by students at various stages of completion of the dissertation. Papers were delivered by Vincient Burton (North Carolina Central College), Woodrow Nichols (University of Florida), both completing dissertation requirements from the University of California at Los Angeles. Discussion sessions were led by Dr. Donald Deskins (University of Michigan), Dr. William Brown (University of California Santa Clara) and by Frank Mills and Herman Jenkins (both students at Clark).

It became very clear within the context of the first discussion session that there exists no consensual agreement among black geographers concerning their relation to the discipline, neither as students nor as professionals. The outstanding question which evolved from the first session and permeated all the following was: Should black geographers address themselves to the profession as an organized group or as individuals?

The question is a complex one and it is not entirely clear where consideration of the question merged with personality conflicts. The obvious resolution is, of course, that we should avail ourselves to both means of expression; that is, we should act organizationally when appropriate and individually when that

is appropriate. But there are certain propositions inherent in both sides of the argument which tend toward a mutual exclusion and which transcends the roles we play in academia.

First, the question of organization vs. individuals as ways for blacks to relate to the geography profession is paradigmatic and represents schools of thought concerning black-white relations in American society. The former approach is representative of the prevalent social consciousness found among blacks during the latter 1960's and early 1970's, where internal unity is sought as a lever for bringing about social change. The latter approach is reminiscent of an earlier period when it was popular among certain blacks to conjure up a mangled philosophy of individualism as rationalization for their own anti-black feelings and actions.

Secondly, there seemed a rather high correlation between the position different people took in regard to a structured or non-structured approach and the way they perceived their status (real or fancied) in the geography establishment; that is to say, some people apparently perceived themselves as something akin to plantation strawbosses resisting attempts by malcontent field hands to change the pattern of things.

Needless to say, the preceding situation which I have tried to outline made the discussions on the issues that the symposium was intended to help resolve all rather predictable: nothing was resolved. In the end the individualists went their individual ways and the people who opted for something structured agreed to establish some form of communication between themselves as a first step. From the other side of the coin, however, Clark faculty members received no consensus sense of direction from blacks so session participants decided to spend the last session discussing the situation at Clark in particular.

Several points were raised concerning black graduate students of geography at Clark: (1) there is a good chance that no new black students will be coming to Clark's department in the fall of 1972; (2) out of the 10 or so black students presently in the department of geography, perhaps only two or three will be back in the fall of 1972; (3) the point was made that Clark's image has become one of Clark being a school that blacks can get into, but cannot get out with a degree.

Recent developments may successfully counter the latter point; the bestowal of several Master's degrees and possibly one PhD upon black students is likely in the near future. It is not entirely clear, however, whether faculty members feel it would be a good policy to continue to actively recruit black students, given some of the problems involved. A committee was appointed to pursue the possibility of establishing a course based on a black perspective in either cultural or social geography; the members are Dr. Martyn Bowden, Sister Annette Buttimer, Bobby Wilson and Herman Jenkins. Such a committee is perhaps indicative of a continued faith on the part of Clark's faculty in a commitment to make the preparation of future geographers an exciting and fruitful experience.

Herman Jenkins

ASPECTS OF REDEVELOPMENT AND SOCIAL SERVICE PROVISION IN URBAN AREAS:

Queen's / Syracuse / Clark Colloquium, 7-9 April, 1972

It is widely acknowledged that National, and even Regional meetings of professional associations are often more useful for the contacts which are established, and the conversations which take place in the corridors and near-by bars, than for the content of the formal proceedings. The idea of a rotating colloquium involving the graduates and faculty of Queen's University (Kingston, Ontario), Syracuse University (Syracuse, New York) and Clark University (Worcester, Massachusetts) was conceived with this situation very much in mind. It was felt that considerable benefit would accrue from a regular exchange of ideas in an informal setting. Although a meeting between the Queen's and Syracuse departments had taken place in 1971, this gathering marked the first occasion upon which all three departments were able to get together.

The formal proceedings were enhanced by the presence of two guest speakers; Marc Fried, a well respected urban sociologist (Boston College), and David Harvey (Johns Hopkins University, Baltimore). In the Saturday morning session both of these scholars made short statements under the rubric of "Problems of Central City Redevelopment" which acted as a focus for discussion. Fried argued that one could not consider urban residential structure without becoming deeply enmeshed in issues of class. He suggested that both satisfaction with residence in a relocation context and grieving for former homes were a function of social and culturally determined expectancies reflecting the social class characteristics of society. Harvey's statement provided a stimulating complement to Fried's. Adopting a Marxist viewpoint, he discussed the socio-economic fabric of the city in terms of the contingencies of the market mechanism. He pointed out that the functioning of a capitalist system is dependent upon the constant generation of demand, and argued that the planned obsolescence of much structurally adequate housing within central city areas illustrated the operation of this process in the housing market. There ensued a lively discussion which was informally extended over a leisurely lunch. Indeed, the session set the tone for the exchanges which followed throughout the weekend.

The focus of the afternoon session which was entitled "Aspects of Social Service Provision," was somewhat more restricted. John Holmes (Queen's University) suggested a number of ways in which geographers might contribute to this issue. Geographic modeling, he argued, might not provide the optimum locations for facilities but it constituted a useful tool for defining the areas of highest demand so that more detailed micro-level analyses could be efficiently directed. A statement by Harvey Fladd (Syracuse University) represented a more human perspective. Adopting a descriptive approach he discussed the plight of Indian groups living on reservations in the state of New York. His discussion of spatial inequalities in service provision for this minority group was highlighted in a description of health care provision. The restrictions imposed by the presence of a mobile health care unit solely on Thursday evenings were well amplified by his observations on the difficulties which have to be overcome by those who are imprudent or unfortunate enough to fall ill at other times. The third statement in this session, by Sister Mary Annette Buttimer (Clark University), provided a useful integration of the many issues which had been

raised. Her exposition was based on a recently published paper concerned with health care provision (Antipode: III:1). She argued strongly for a reorientation of our thinking on the question of service provision, suggesting that we should view the problem from the perspective of those receiving the services rather than from the managerial perspective of those who assess the situation in terms of optimum supply areas. The afternoon discussion was perhaps less academic than the mornings exchanges had been, and particularly towards the end of the meeting it became apparent that, for many of the participants, the barriers were down and some gut-level feelings were finding expression.

It was anticipated that due to Saturday evening festivities, Sunday morning would find a somewhat more subdued and bleary-eyed gathering. Consequently, a leisurely stroll around sections of the Worcester Model City Neighborhood was scheduled. In order to avoid the possibility of offending local residents, care was taken to ensure that the party was split into a large number of groups. From an educational point of view the walk was a success for we were able to see many features of a deprived central city area which all too frequently we view from the sterile abstraction of the written word. How much better it would be if those of us who call ourselves urban geographers spent a little more time experiencing the city, and a little less in pontificating about it. The stroll which was undertaken in fine clear weather provided a pleasant conclusion to a weekend which appears to have served its purpose. Many useful contacts were made, new perspectives on dissertation topics were solicited, and serious academic and social issues were raised and debated -- all in an informal and congenial atmosphere.

The optimism in these notes is intentional. To this writer it is apparent that one of the best ways to improve communication both within geography, and with allied disciplines, is to hold such small informal gatherings. Many of the benefits accrue in the long run. Such colloquia should not be one-shot affairs. Rather they should be rotating seminars whereby each semester a different departments acts as host. Three participating departments seems to provide an ideal critical mass. Moreover, a most encouraging feature of the whole event was the ease with which it was possible to provide a varied program on a very small budget. The only essential ingredients are goodwill, and offers of accommodation from host faculty and graduate students. It is strongly recommended that other groups of departments contemplate the inauguration of a similar scheme. I'm off to Kansas soon, but I am looking forward to Syracuse in the fall even more.

Graham D. Rowles
April 15, 1972

Appendix

Laurence S. Klugman (Clark University) who was to have contributed a statement in the session on social service provision was unfortunately unable to make his presentation, as he was confined to a hospital bed. His appendectomy was carried out after he had suffered considerable distress and delay in gaining access to medical attention. Somewhat ironically, his undelivered statement was concerned with problems of community access to essential health services.

Editor's Note

This report is also published in Antipode, Vol. IV, No. 2 (June, 1972).

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REGIONAL GEOGRAPHY IS ALIVE AND WELL AT CLARK!*

Interest in regional geography, a neglected topic of late, has revived at Clark. In the fall of 1971 The Worcester-Clark University TTT program submitted a proposal to the Office of Education for the funding of a geographic research and education project on Poland. It was suggested in the proposal that

. . . the Clark TTT Program undertake an international project of broad scope. The broad purpose of the project is to infuse a foreign context and experience into the Clark TTT Program. The primary objective is the development of a stronger regional component in geographic education. This objective is to be accomplished by a cooperative venture between Polish and American scholars and teachers in preparing a regional monograph -- A Regional Economic Geography of Poland. This proposal, then, is designed to accomplish the writing of the monograph and, at the same time, to experiment with its success by using it in university and school courses on a unique opportunity for TTT fellows and community educators, together with University personnel, to co-operate with Polish educators and scholars in writing the monograph, and presenting the contents of the monograph in a classroom situation. A subsequent phase would involve the translation of the university course success into colleges and the schools.**

While the proposal was being evaluated in Washington, a group of graduate students and faculty began discussing the form of the proposed monograph and possible research topics. Members of this group did the initial exploratory work in Poland during January Study Period. Participants were: Gerald Karaska and Duane Knos, faculty; Dick Clifford and Wasily Shepeluk, Worcester area high school teachers; Bob Dillman, Bob Gardula, Alfred Hecht, Peggy Lentz, and Graham Rowles, geography doctoral candidates; Cliff Craig, Bill Murray, Bruce Ryder, and Les Solomon, TTT fellows; Aaron Hazard, TTT community representative; and Herman Jenkins, Clark undergraduate. Continuing over the rest of the year, this project will involve another trip to Poland during June 1972, and exchange trips to the U. S. by some of the Polish collaborators in April 1972 and again in August-September 1972.

During November and December, we began research on and also discussed the objectives of the Poland project. Early consideration included: the type of

*or, "Jerry Karaska Discovered the Globe."

**Research and education project proposal, TTT International Program in Geography (Worcester-Clark University TTT and the Polish Academy of Sciences), Clark University, Fall 1971, pp. 3-4.

research currently being done in Poland, the expected content of the regional monograph, and problems of being strangers in a strange land (including the silly traditional warning to travelers "Don't drink the water"). None of this quite prepared us for our experiences.

We arrived in Poland on a snowy Friday -- Jan. 7. Initial impressions included a rather plain, modern airport with polite but sober customs officers. That many of us did not have very much money surprised the officials until it was explained that we were associated with a special, government-funded project.

Arriving on a Friday gave us the weekend to adjust to the change in time -- a six hour time difference -- and in place. Over the weekend members of our group were taken on tours of Warsaw and then we personally explored some of the city. At first Warsaw appeared to me to be a city in black, white, and shades of grey. Winter explained part of it, and later when invited to various friends' apartments, color was found inside. Interiors of the apartments I saw were as colorful and well decorated as the exteriors were blandly modern and drab.

During our two week stay most of our time was spent in Warsaw with a four day excursion to Cracow and Zakopane, the latter a Polish ski resort in the Carpathian Alps. In Warsaw we engaged in a series of seminars and discussions with members of the Institute of Geography, Polish Academy of Sciences. The Polish members of the research project included 20 faculty and staff, and 12 graduate students (or science workers). The seminars dealt with various aspects of Polish geography with strong emphasis on regionalism, and on economic and spatial planning. In our discussions we considered various joint research. All of the Polish participants were enthusiastic about the project and more than willing to contribute to individual research projects.

During our second week in Poland we went on a four day excursion to the south of Poland to visit Cracow and Zakopane. On this trip three of the Polish graduate students from the Institute accompanied us as guides and interpreters. The first two days were spent sightseeing and relaxing in Cracow. A frigid three-hour bus ride over narrow rural roads during which we were packed into the bus like sardines in a can took us to Zakopane. We stayed a day and a half in this lovely ski resort on the Polish-Czech border. It is truly an exquisite town, planned to emphasize its local folk crafts and beautiful natural setting.

Poland gave us many unexpected surprises. Never have I felt quite so embarrassed: it seemed so inappropriate to be in Poland but almost always have to communicate with people in English or resort to pointing and sign language. Other observations: The absence of Coke and other carbonated soft drinks was notable. People automatically stop to leave their coats, etc. in the attended cloakrooms in all public buildings. In winter, entrances to buildings are covered with heavy curtains. Polish hams are not seen very often in shops and restaurants -- they are mainly exported. Central heating is provided as a city service to all buildings from three large generating plants.

The people of Poland were the most pleasant surprise. The streets did not have many cars but the sidewalks were full of people. Buses and trolleys were numerous and well patronized. People are very orderly on streets, queuing for buses, taxis, etc. and crossing only at crosswalks. And most people were well

dressed: women were as fashion conscious as anywhere but men tended to wear white shirts and narrow, conservative ties. Almost without exception people in Warsaw, especially the members of the Institute of Geography, and everywhere we went in Poland were genuinely friendly and interested in us.

All of these "surprises" which we experienced indicated a general lack of current knowledge about Poland. But the people we talked to were well informed about America. One of our Polish friends succinctly summarized the problem: "Poland is closer to the United States than the United States is to Poland."

Peggy Lentz

THE NIGHTS THE LIGHTS WENT OUT: JAMAICA FIELD CAMP, 1972

Though several Clark graduate students chose to travel to cold Poland over January study period, another group accompanied by professors Larry Lewis and Sister Annette Buttimer opted to visit sunny Jamaica for three weeks of field work. Once we arrived, our base of operation was an Anglican Youth Camp located about two miles north of Negril, a small coastal village positioned on Jamaica's extreme western point about fifty-five miles southwest of Montego Bay, the island's second largest city. Following a late night ride on the "wrong" side of the road over the rough and sinuous highway along Jamaica's northwestern coast, our first view of the camp -- in California ranch house style sent south to the tropics -- was a welcome sight. Inside, however, rusty bedsprings, sagging bunks, cold showers, gushing toilets, and frequent power failures were the order of the day -- and night. A fine white beach a short distance from camp helped alleviate much of our discomfort.

In regard to study, five teams conducted various sorts of research. Assisted by some young Jamaicans, Nick Crawford, a physical geographer, began to collect field data for his dissertation, which focusses on the development of tropical karst formations. He will be returning to Jamaica this coming summer to gather more information. Working at sites along and in the nearby Negril River, Alan Marcus, Dutch Klugman, and Andy White, a Worcester Polytechnic undergraduate, investigated water flow and water quality in a non-industrial environment.

The human geographers were also busy. Mark Mujwahuzi, Dan Dworkin, and his daughter, Judy, studied water-supply needs and sources for samples of Jamaicans living in the mountains, in semi-urban areas, and along the seacoast. Another team of Nancy Burns, Frank Mills, Jim Wood, Marc Alan Eichen, Ken Gelman, and David Seamon conducted their research and taught a bit at a secondary high school in Green Island, a small community twelve miles from camp. Nancy led some classes in environmental awareness and studied the childrens' perceptions of their environment. Frank and Jim participated in the agricultural classes at the school and attempted to determine reasons why so many young Jamaicans are no longer interested in farming. Ken, Marc, and Dave presented slide presentations on urban, suburban, and rural environments in several social studies classes and investigated why so many students desire to migrate to Jamaica's cities after completing high school.

At the same time, Sister Annette provided some lecture-discussions on man's changing attitudes toward nature, Larry Lewis gave a presentation on Mexico, and Mark Mujwahuzi, a graduate student from Tanzania, spoke on the problems of developing African countries at a schoolwide assembly which was a resounding success. The teachers and staff at the school, particularly the principal, Simon Clark, were all wonderful people -- hospitable, helpful, and very interested in our research and us as people. Two parties -- one held by the graduate students at the camp and the other given by the teachers at the school -- were very enjoyable and demonstrated that if they make the effort, people of different countries can become friends in next to no time. That's a nice thing to discover in these times of trouble.

What does one remember about our three weeks in Jamaica? As is probably the case with any field trip, it's the experiences and people that stick with the memory over time, while research topics and purposes fall into oblivion. Who won't forget a wonderful Jamaican named Mrs. Spence, our cook who had a penchant for producing boiled rice and fried chicken? Or garbage cans filled with research equipment, Mrs. Dias and her bomb threat on the way down, brownies that ended up like pudding, short swims before breakfast, pleasant evenings with pleasant people, two weekends spent on the beaches of Doctor's Cave, disintegrating steering wheels, squeaky brakes, hot afternoons, cool nights, market day in Montego Bay, the "variety" in menu, the hospitality of the Dworkin family, many smiles, a few frowns, or friendly black faces underlaid with doubt and mistrust? Yes, three weeks is a short time, but the experiences those weeks produced are many and lasting. By the way, where's the sign-up sheet for next January's field camp?!

David Seamon

THE GRADUATE SCHOOL OF GEOGRAPHY

HANK AAY notes: "This third year at Clark seems to have been interminable; little or no course work, only one major task -- PhD orals. Now that they are behind, other interests have re-emerged. Tentative dissertation title: "The Historical Development of the Spatial Tradition in Geographic Thought." This summer I am scheduled to teach political geography at Waterloo Lutheran University. Back next year for dissertation research and writing."

DANIEL AMARAL is a third-year student interested in environmental management.

BRAD BALTENSPERGER is working on his dissertation, "Pre-Migration and Post settlement Images of the Central Great Plains." "This year I began research on my dissertation in Worcester and plan to continue that work next year at Yale, Chicago, Topeka and Lincoln."

WALKER BANNING (BA, University of Montana, 1966; MA, Syracuse University, 1969) is a third-year grad working on his PhD. His interests include water resource management, community decision-making, public participation, coastal wetlands, public policy consequences, and resource allocation. Other news: "Our dog Chips is doing fine." And plump she is, too!

ROBERT J. BECK. "What is this man doing?????????????????????????????????????"

LEN BERRY has major research interests in the problems of developing nations, especially in an African context, and the geomorphology of arid and semi-arid areas. "At present I'm trying to write up in book form something of the work I've done in both areas over the past few years. My family and I are adjusting more or less to living in New England after many years of warm weather living and working. I can say: it is different."

MARTYN BOWDEN is Associate Professor of Geography.

SISTER ANNETTE BUTTIMER is completing a busy second year at Clark, teaching courses in social geography, urban social space, philosophy of geography, and geography honors. Her book, Society and Milieu in the French Geographic Tradition (Chicago: Rand McNally, 1971, AAG Monograph No. 6) was published in July, and her article, "Health and Welfare: Whose Responsibility?" appeared in the November, 1971 issue of Antipode. At the AAG Kansas City Meetings he presented a paper entitled, "Inequality, Inefficiency, and Spatial Injustice." Her article, "Social Space and the Planning of Residential Areas," which describes much of her research on residential satisfaction in Glasgow, Scotland, will appear in the June, 1972 issue of Environment and Behavior. Next spring she will spend the semester in Lund, Sweden, working with "the Maestro himself," Torsten Hägerstrand.

NANCY SPRISLER BURNS (BS, Emmanuel College; MED, Boston State; Institutes: Smith College, Clark, 1967 Academic Year; University of Washington, field geography in USSR) is working on her master's thesis which focusses on Syrian and Chinese neighborhoods in Boston.

PAULINE ("POLLY") CAREW is Map Curator of the Guy H. Burnam Map-Aerial Photography Library. She mentions that participants in the 63rd Annual Conference of the Special Libraries Association to be held in Boston will be visiting the Library.

WILLIAM ("BILL") B. CAROLAN, JR. (BA, University of Arizona; BS, Oregon State University) lists his interests as quality of human life in places, distribution of earth elements essential to quality of human life, and cartographic techniques to present that distribution. He notes that in the past year he has constructed and printed new apt maps (non-continuous cartograms) of the United States with state areas proportional to 1970 populations and with state areas proportional to 1972-76-80 electoral votes. He has also constructed two new apt maps of the world, one with continent areas proportional to 1968 per capital gross national product. He writes: "My greetings and best wishes to the many Clark people who have come and gone while I have been here."

NORMAN T. CARPENTER is Research Associate in Cartography. Last year he presented half of a Computer Graphics course and a four-lecture introduction to cartographic techniques for the Lab staff, while managing the Cartographic Laboratory and consulting with the Map Library and the audio-visual equipment program. Next year: more of the same, plus an intensive four-to-six credit course in professional cartographic techniques. He mentions that since December the Cartographic Lab has added two professionals, David Spinney and Avis Houle to its staff of students and part-timers. Maps designed and executed in the lab appear in publications of Northwestern University Press, New American Library, Rand-McNally, D.C. Heath, University of California Press, and Economic Geography.

JAMES W. CERNY is just completing his first year at Clark, working for his PhD. His research interests include computer graphics, toponymy, cartograms, and eupotometrics. In regard to news, James Joyce appears to say it all: "My globe goes gaddy at geography giggle pending which time I was looking for my shoe all through Arabia."

SAUL B. COHEN, Director of the Graduate School of Geography, spent the first half of a year-long sabbatical in Israel at the Hebrew University's Geography Department. He and his family did some travelling within the country, his elder daughter being enrolled at a Kibbutz School Program for Americans and his younger daughter grappling with the language and traditional curriculum of an Israeli eighth grade program. Much of the time was spent with old geography friends, including such past visiting-Clark professors as David Sharon and Asher Schick. He managed to complete a revised edition of Geography and Politics in a World Divided during this period. The second half of the year was spent back at home in Newton, mostly devoted to reading, some writing, and a good deal of relaxing. One of his projects that is beginning to see the light is the forthcoming Oxford World Atlas, for which he serves as geographical editor.

DIANA CONYERS is a Visiting Teaching/Research Assistant for the current semester. She is British (graduating from the University of Sussex) but spent the last three years working in the Bureau of Resource Assessment and Land Use Planning, University of Dar es Salaam, Tanzania, working on regional, agricultural and rural water development planning. Now at Clark, she is helping to teach courses in Problems of Developing Areas, Regional Planning and East Africa as well as working with Len Berry on data collected in Tanzania.

JOE COPES writes: "next year I expect to write my dissertation. Hoping to have the dissertation completed by the end of the fall term, I'll spend a portion of that term here and the remainder in the field. Upon receiving my degree I expect to return to Grambling College in Louisiana. Finally, I suppose I will no longer be a COMGA Fellow since I received a Ford Foundation Fellowship for Black Americans."

CLIFFORD CRAIG a second year grad, is interested in social geography, urban geography, and learning processes. He has involved himself in programs which integrate academic research and education, for instance, organizing teachers' workshops, designing an experimental geography course for Worcester Junior College, and writing curriculum materials for geography courses. Last year he was a discussant at the NCGE convention in Atlanta, and this past January he was in Poland with several other Clark students and faculty, surveying potential research possibilities for the dissertation. His family now totals five children, the latest, "a little, but lively, boy" born last October. He was recently ordained as a high priest in the Mormon Church and was also appointed as a second counselor in the Worcester Ward Bishopric.

NICK CRAWFORD writes: "I plan to spend the summer in Jamaica doing field research for my dissertation -- 'A Process Response Model of the Tropical Karst Denudation System.' I have accepted a joint appointment for next year in the Geology Department at Vanderbilt University and the Geography Department at Peabody College (The two schools are across the street from each other in Nashville, Tennessee)."

F. H. ("Harry") CUMMINGS is a second-year graduate student and lists his interests as poverty, modeling, growth poles, questionnaire design, quantitative methods, rural development, regional development, and social development. Having just passed his orals, he has begun to put together a dissertation proposal. In June he will begin work for the International Development Research Centre in Ottawa, Ontario, helping to organize a cooperative regional development project in southeast Asia, from which will come his dissertation data. His topic will focus on economic development and internal migration.

ROBERT JOHN DILLMAN (MA, Penn State) is primarily interested in urban-political and urban economic geography with emphasis upon decentralization of facilities.

DAN DWORKIN is a third-year graduate student at Clark. His primary interest is resource management.

JUDY DWORKIN is a first-year graduate student interested in environmental management, problems of developing countries, and political geography. She was social chairwoman for CUGS over the past year and did a fine job. Thanks, Judy!



(from Radical Therapy)

DARRELL R. FERGUSON has, in the past year, taught in the Evening College, coordinated and taught an experimental course in political geography, worked in a number of areas in political geography, resource management and environmental perception including a dissertation entitled, The Spacial and Political Implications of the Opening and Closing of the Political System Upon the Political Impact Area: The Case of the United States, 1928-1968. He presently is looking for a college teaching job -- anywhere in geography: political, resource management or environmental perception preferred.

JIM FONSECA (BA from Bridgewater State College) recently married Elaine Hart of Auburn. Presently writing a thesis proposal on systems analysis of the international trade network.

KENNETH GELMAN formerly a Clark undergraduate, and now a first year grad, lists his research interests as focussing on ghetto formation and urban mass transit development. He notes: "I'm presently examining black-Jewish confrontations in the Boston community of Mattapan -- geared toward my proficiency paper and possibly future endeavors. Along with two other students, I will be processing data from Jamaica on rural-urban migration patterns of school children. Marriage is coming this summer -- to Ellen Gilbert, a Clark undergrad, to whom I am now engaged."

TOM HANKINS (BA, Denison University, MS, University of Chicago) is a second-year graduate student at work on his PhD. His interests include drought hazard in peasant agriculture and environmental management.

KIRSTEN HARING is completing her third year of graduate study at Clark. She notes: "More absent than present this year, 'I've been busy taking doctoral orals and concocting a dissertation proposal."

MELSETTA HARRISON (BA, Allen University, Columbia, South Carolina) is presently working on her master's thesis which involves an areal analysis of crime. She will be leaving Clark at the end of May, 1972.

ROGER HART is an anthropogeographer working with Vermont children and observing their environmental behavior in the wild, for a dissertation on Childrens' Geography. He says, "I'm not skiing, honest I'm not!"

ALFRED HECHT (BS and MA, University of Manitoba) is spending his third -- and hopefully last! -- year at Clark working on his dissertation which focusses on the impact that industrial relocation from urban centers to urban peripheries has on the employment fields concerned.

GORNDON A. HINZMANN, JR. (BA, Wayne State University, MA, Clark) lists his research interests as including environmental cognition and behavior, particularly images of accessibility of places (see his paper included in this volume). He writes: "As of now, I am racing to complete the PhD before I begin receiving social security. Otherwise, I may become Professor Emeritus before I become Professor."

STEPHEN HOBART is working on his dissertation and teaching geography at Keene State College in Keene, New Hampshire.

RICHARD HOWARD is Assistant Professor of Biology and Geography.

GERALD HYLAND a third-year graduate, is in Cincinnati, Ohio, working on his dissertation which focusses on rural migration to urban areas.

BOB KATES, Professor of Geography, is back again from Africa (Oh, when did you leave, Bob?), and is working with his friends: with Dan, Dick, and Roger -- sending Aquarius, the urban water resource planning course, on the road; with Len -- putting together papers on the environmental perspective from East Africa; with Mark -- teaching an East Africa course; with Gilbert and Ian -- writing a book that synthesizes the five-year natural hazard project; with Ben and Tom -- doing research on drought; and with Elly and Kathy -- operating a day care center.

GERALD KARASKA is Professor of Geography and Editor of Economic Geography.

DARWIN P. KELSEY (BA, History, Seattle Pacific College, MA, American Folk Culture, State University of New York, Cooperstown Program) is presently on leave of absence from his appointment as Director of Historical Agriculture, Old Sturbridge Village. Major interest remains focused, however, on agricultural history.

LAWRENCE "DUTCH" KLUGMAN (BA, Johns Hopkins University, 1971): General interest in urban: political, social, and psychological geography. Major interest in inner city housing problems and to a lesser extent the provision of essential city services.

DUANE KNOS is Professor of Geography and Co-director of TTT (Training Teacher Trainers).

WILLIAM A. KOELSCH writes: "On leave of absence Spring, 1972, spent the winter months in Florida relaxing and working on chapters for A History of Chicago, Vol. IV (with Bessie Louise Pierce), current research also in topics relating to the history of Clark, including the history of the Graduate School of Geography, carried on in part with the aid of grants from the American Philosophical Society and Clark University. Recently completed writing includes the biographical sketch of Ralph H. Brown for the Dictionary of American Biography, an essay entitled,

"Terrae Incognitae and Arcana Siwash: Toward A Richer History of Academic Geography," for the forthcoming John K. Wright memorial volume of essays and a book of essays and readings in environmental history called American Habitat, 1600-1970, due out in the Fall. Other recent professional activity includes speaking at the Fall, 1971 meeting of the Delaware Valley Geographical Association and the installation of officers of the Charles-town (Mass.) Historical Society, and attendance at the meetings of the Florida Society of Geographers at Gainesville and the Organization of American Historians in Washington. Recent appointments include the post of Archivist of the University (part-time) at Clark, membership of the A.A.G. Committee on Archives and Association History, and on the Board of the Clark University Press, now undergoing some resuscitation as a constituent member of the new University Press of New England. I continue as Vice-President of the Clark chapter of Phi Beta Kappa and a trustee of the Michael P. Quinn Scholarship Fund of Charlestown. Courses projected for next year include a new one on Historical Geography: Methods, Techniques and Sources, to be taught jointly with Professor Bowden. It is obvious from the foregoing list of activities that I have no time for family life. However, my Siamese continues in exuberant health and can lick any dog in the neighborhood."

PEGGY LENTZ is a third-year grad who spent last year as an exchange fellow at the University of Bristol in England. She is interested in urban economics and urban planning. She notes: "Regionalization lives at Clark -- Poland is an excellent place for dissertation research."

LARRY LEWIS, Associate Professor of Geography, is spending his third year at Clark. He has begun construction of a stream-basin model that will be utilized at the beginning of September both for teaching and research on basin properties and their relations to amount and distribution of flows. He has also begun an inquiry into the ramifications of urbanization on the physical properties of stream basins. He and Len Berry have been organizing an undergraduate and graduate concentration in geomorphology which has gotten off to a good start in the past year.

KAO-LEE LIAW is a second-year grad at Clark. His research interests include regional problems and the philosophy and procedures of scientific method.

DAVID MCCAULEY

GEORGE McCLEARY is Assistant Professor of Geography.

ALAN MARCUS comments after six years at Clark, "I would like to thank the sand-flies and mosquitoes of Jamaica for the areal salute and sherry party for my contribution to the food supply for native diphtheria."

PERRY MASSEY, a third-year graduate student, will be going on a one-year internship at Grambling College in Grambling, Louisiana, "teaching Clark geography."

FRANK L. MILLS is completing his first year at Clark. His research interests include tropical agricultural systems and development with emphasis on the Caribbean, resource management in Third World countries and the effects of tourism.

NUBIA MORALES is a third-year graduate student from Columbia. Presently, she is completing her master's thesis which is a spatial analysis of educational opportunities in Columbia.

BOB MORRILL: I asked my four children if they thought it would be nice if daddy had a PhD and all that they said was, "What's a PhD?"

MARK R. MUJWAHUI (BA, University of East Africa, Dar es Salaam, Tanzania, 1969) is a second-year graduate student at Clark. His main interest is environmental management and resources, particularly water resource development in rural areas of developing countries.

RAYMOND E. MURPHY Professor of Economic Geography, Emeritus, notes that his book, The Central Business District, is due out any day and will be published by Aldine-Atherton. He is presently working on new editions of The American City (McGraw-Hill, 1966) and Exercises in Urban Geography (McGraw-Hill, 1968).

WALTER MURPHY

L. W. ("BILL") MURRAY, JR. (BA, 1961, Iowa State Teachers College, MS, 1969, University of Missouri) is spending his second year at Clark and lists his interests as decision-making in a centrally planned economy and diffusion of industry in post-war Poland.

RICHARD PEET spent the summer writing a part of his forthcoming book on geography of American poverty and editing a book of essays on poverty. His paper, "Influences of the British Market on Agriculture in Europe Before 1960" will appear in Transactions of the Institute of British Geographers in July. He has also been editor of Antipode which published one issue of 1971 and will shortly be publishing two more issues.

RICHARD REID is a second-year graduate and notes: "A good year! I will be on a teaching internship next year and am looking forward to it. The road goes ever on."

GARY ROBOFF writes: "I've spent most of my first year in the graduate school trying to 'define' my interests in the face of an increasingly wide menu. My urban historical interest continues, widened to include a cultural context. I hope to do some work at M.I.T. next fall and wedding bells are part of the more immediate future."

GRAHAM D. ROWLES a Briton from the University of Bristol, is one of Clark's post-doctoral fellows this year. His interests include environmental psychology, locational decision making, urban social geography, and research design and methodology. He has been very busy this year, taking part in the field trip to Poland, organizing and teaching a course on research methods in the social sciences, and arranging the Queens/Syracuse/Clark Colloquium (see report elsewhere in this volume), which was a resounding success. He notes that "I'm succumbing to the problems of looking after myself." The result -- marriage in July to Ruth Anderson, a former Clark undergraduate who is now working on her master's degree in geography at the University of Wisconsin in Madison.

BRUCE RYDER offers the following arcane note: "Goodbye again . . . for now . . .?"

DAVID SEAMON (BA, Albany State University, Albany, New York) is a second-year graduate student interested in urban social geography, environmental perception and cognition, and philosophy of geography and social science. This past January he was in Los Angeles for the EDRA III conference (Environmental Design Research Association) for which he had organized a session focussing on environmental images derived from popular sources. For the session he presented an introductory paper entitled, "Environmental Imagery: A Tentative Ordering," which is published in Proceedings, EDRA 3/AR 8 Conference, UCLA, 1972, W. J. Mitchell, editor.

ROBERTA SMILNAK is a second-year grad working on her PhD. Her main interest is political geography, particularly conflict-resolution (revolution, riots, etc.) and school redistricting and curriculum development. Currently she is busy transforming notions of political geography into materials for the college classroom.

LES SOLOMON is a second-year TTT graduate student interested in urban geography and environmental perception and cognition.

MARGARET STEPHENSON is a third-year graduate student and is presently finishing her master's thesis.

JOSEPH B. THORNTON, a third-year grad, has just completed six months of research in Jamaica. He is now in the process of writing his dissertation which is entitled, "Nineteenth-Century Agricultural Jamaica: a Study of the Parishes of St. Thomas and St. Andrew." He plans to return to Washington, D.C. and his teaching position at D.C. Teachers' College in the fall of 1972.

SAMUEL VAN VALKENBERG is Professor of Geography, Emeritus.

HENRY WARMAN: "New courses now include offerings in 'Why the Weather' for January Independent Study and Physical Climatology. Research continues to be in the applied category with a desire to find new and better ways of teaching geography -- including mental gadgets as well as creating hardware dealing with transparency programs and motion pictures. The writing of new scripts, with directions to camera men, for a film series (color and sound) on the United States is a current venture. A 'Human Resources of the United States' paperback is in the near future production list of Rand McNally. An expanded version of the book for teachers, Geography -- Backgrounds, Techniques and Prospects, printed by Clark Press originally, has now become a new twenty-four chapter manuscript about to be submitted to a publisher. To Alumni who have known me before the hair became white, will rejoice with me in the fact that son, Fred, and daughter Maryester in January and February presented me with a granddaughter, Jill, and a grandson, Glenn.

E. T. ("TED") WEISS, JR., last year's editor of The Monadnock, notes: "I have slowly made progress with my dissertation on the changes through time of Worcester's residential structure. I have also experienced the bittersweet delights of doing battle with a recalcitrant job market. I look forward to another outstanding issue of Monadnock."

ERNIE WIGHT

BOBBY WILSON, a third-year graduate student who recently passed his orals, is interested in urban social geography; more specifically, he is concerned with black migration to large urban centers, and the problems of adjustment encountered by black rural migrants to urban areas.

STEPHEN O. WILSON still working on the dissertation, is a member of the Faculty of Empire State College at the Albany Learning Center in Albany, New York and is on the Executive Committee of the Board of Directors of the New York State Environmental Planning Lobby.

BEN WISNER is working on his dissertation at the University of Nairobi in Kenya.

DENIS WOOD, busy completing his dissertation, is finishing up his fourth year as grad student at Clark. In regard to research interests, he notes: "The word 'space' doesn't begin to cover it. Neither does the word 'time'. Maybe the word 'existence' covers my interests. At least it's on the right road." And in regard to news: "Last June I walked off with my MA and this June I hope to walk off with the PhD. Fast work, if I do say so. In between I taught a little and went to Europe with Robert Beck and thirty-one wonderful kids: Marty, Janice, Bernie, Martin, Carol, Janet, Karen K., Karen B., and Karen M.; Sheila and Mary Ann and Maggie and Nancy and Belinda and Ken, Paul, John, Mark, Lori, Steve, Marie, Daisy, Nylia, Daria, Peggy, Maureen, Ricky, Terri, Kathy, and Pat. On the home front (that's the phrase, isn't it?) we acquired two cats, Pancho, and Kitzen, Pancho having been left on Ronnie Mason's desk as a present from someone who knew she was allergic to cats. Also, we bought a piano, mostly for Ingrid to play, but I'm learning. Just got Ives' Second Piano Sonata -- you should see those tone clusters!"

JAMES WOOD (BA, Clark University) is interested in historical geography and the images of the New England environment in the 16th century. He says, "I think the Clark Graduate School of Geography has some good offerings now, in some fairly specialized areas. It has the potential to improve and expand these offerings."

ROBERT WRIGHT

ALUMNI NEWS

BURTON W. ADKINSON (PhD 1942) is Director of the American Geographical Society. In August of 1971 he participated in an international conference on Information Science held in Tel Aviv, Israel; in October he was a UNESCO consultant at the International Governmental Congress on Scientific Information. In the past year he visited geography departments and institutes in Israel, Germany, England, and France. During September he vacationed in Israel, Greece, and Italy.

LEWIS ALEXANDER (MA 1948, PhD 1949) is Professor and Chairman of the Geography Department at the University of Rhode Island. He is also Director of the Law of the Sea Institute there. He was Program Chairman for the Boston AAG meetings last April.

AGNES M. ALLEN (MA 1934), PhD 1937) is Professor of Geography at Northern Arizona University. She mentions that "I am still teaching geography full time and enjoy it very much since I have been relieved of administrative duties."

DAVID L. AMES is chairman of the Urban Studies Program at the Virginia Commonwealth University in Richmond, Virginia. What follows is a portion of a letter he wrote the editors in regard to the questionnaire on trends in geography which was sent to alumni:

Dear Messrs Eichen and Seamon:
 . . . The issues that are raised (in the questionnaire) are largely dead ones or if still alive must be dragging on the discipline. Are we still debating the pros and cons of quantitative methods, still worried to legitimize regional geography, still wondering if we really need new models and theories? If the work of the last decade has not laid

these questions to rest, demonstrating convincingly that quantitative methods are essential, that theory and modeling provide the intellectual structure of the field, then we are simply contemplating our collective navels.

But perhaps this does explain why geographers have failed to come to grips with some of the major issues facing our society. Review, for example, the professional journals and itemize the articles dealing with the environmental crisis. What discipline should be better prepared to investigate the interface between an urban-industrial society and the physical environment. Yet with some notable exceptions, which for the most part don't or can't get published in the geographical periodicals, there is little indication that the profession has responded. To what extent have political geographers dealt meaningfully with the questions of functional fragmentation in metropolitan areas? and research related to social policy?

Next year make your lead questions "The research efforts of geography should be closely tied to society's needs for solutions to major problems effecting the public good" -- Agree-Disagree.

Sincerely,

David L. Ames, Chairman
 Urban Studies Program
 Commonwealth University
 Richmond, Virginia
 February 4, 1972

ESTHER S. ANDERSON (PhD 1932) has been appointed as an advisory member of the Marquis Bibliographical Library Society. As such she has the privilege of nominating individuals to Who's Who in America and other Marquis publications. Her name is listed in Who's Who in American National Council for Geographic Education in Atlanta, Georgia, November, 1971. In December 1971, she was an Honor Guest as a Charter Member of Sigma Delta Epsilon (Graduate Women In

Science Society) at its Golden Anniversary meeting in Philadelphia in connection with the Advancement of Science. Dr. Anderson is now auditor of the District of Columbia Branch of the National League of American Penwomen.

ROBERT ARNOLD (AM, 1964; PhD 1970) is Assistant Professor of Geography at Worcester State College. "Our first child, Jennifer Alice, was born March 25, 1971 and is now a year old. It's a whole new and exciting world with her in our home. I attend the Boston AAG meetings and was pleased to meet and talk with many alumni of the Clark Graduate School of Geography."

SIMON BAKER (PhD 1965) is Associate Professor of Geography at Florida Atlantic University. In June of 1971 Prof. Baker started a seven month appointment as a senior fellow in the Food Institute of the East-West Center at the University of Hawaii at Honolulu. He was conducting research on the role of aerial surveys in agricultural development. Recently, the Department of Agriculture published the last three parts of the five-part The Look of Our Land: An Air Photo Atlas of the Rural United States, which he did in collaboration with Henry Dill.

NICHOLAS BARISS (PhD 1967) is an Associate Professor of Geography at the University of Nebraska at Omaha. His article, "Gully Formation in the Loesses of Central Nebraska" appeared in the October, 1971 issue of Rocky Mountain Social Science Journal. His current research involves the effects of lithology and time on slope development. During the summer of 1971, Prof. Bariss travelled from Arizona to Washington (State), making geomorphological observations.

GEORGE BEISHLAG (MA 1937) writes, "I finally visited Hawaii to see the vol-

canos and got to Kilauea, the most active volcano in the world and stood looking at the eruption that stopped just five days earlier."

GWEN BELL (PhD 1966) is Associate Professor of Urban Affairs at the University of Pittsburgh. She writes: "After many years as Assistant Editor of Ekistics, I will become Editor in 1972. At the same time, my book, Human Identity in the Urbanized Environment, will come out (published by Penguin). The current women's employment crisis at the University is consuming my time. I hope to become an active member of the AAG Committee relating geography and planning."

A. PRISCILLA BENNETT (1963-64) is a counsellor at the Cambrian College in Sudbury, Ontario. Her husband is Manager of Industrial Relations for the International Nickel Company. Besides working as counsellor, she teaches behavioral science, and in the Spring of 1972 will be the advisor for independent study in geography at Cambrian. Last summer she and her husband journeyed to Europe, travelling throughout the continent and also visiting England and Scotland.

MILDRED BERMAN (MA 1950, PhD 1963) is presently living in Malden, Massachusetts. She enjoyed the fiftieth-year celebration of the Graduate School of Geography at Clark and notes that "Dr. Van, in particular, was in top form."

MALCOM H. BISSELL (1927-1928) warns soon-to-be retired geographers: "You'll find you'll be busier than ever."

ROBERT E. BLACK (MA 1967) is presently the Deputy Director of Worcester's Model Cities Department. He mentions that work on his dissertation is proceeding slowly, and that his family has increased by one, bringing the total to three boys and one girl.

CLYDE J. BOLLINGER is Professor Emeritus at the University of Oklahoma in Norman.

He is continuing research on tides and climate cycles.

ADELBERTT BOTTS (MA 1931, PhD 1934) is Professor of Geography, Bowling Green State University, Bowling Green, Ohio.

LEONARD W. BOWDEN (PhD 1964) is Associate Professor of Geography at the University of California in Riverside, California. He is editor of Manual of Remote Sensing, which is being produced for the American Society of Photogrammetry. In the spring semester of 1972 he will be taking sabbatical and doing six months of field work in Australia, India, and Europe.

FRED K. BRANOM (PhD) is a retired geographer and educator. He recently completed a book, The History of Bethany Union Church, 1872-1972, commemorating its one-hundredth anniversary.

GUY H. BURNHAM (BA 1916, MA 1922) is retired and says "I'm just an old-fashioned geographer."

ROBERT G. BUZZARD (PhD 1925) is President Emeritus, Eastern Illinois University, Charleston, Illinois. Dr. Buzzard writes: "Living in 'Leisure World,' -- not expected to be doing anything a man of my age should do! Apparently good health, a forbearing wife, -- too much personal poundage, -- but otherwise O.K. Go deep sea fishing in the Pacific occasionally, and now and then have a letter from my former students whom I sent to Clark -- who like me had followed the Ridgely trail at what is now Illinois State University at Normal, Illinois."

HARRY H. CALDWELL (BA 1941, PhD 1951) is Professor of Geography at the University of Idaho Economic Atlas (available from the Idaho Bureau of Mines and Geology, Moscow, Idaho, for the cost of two dollars) and is doing contract research with the Idaho Office of Higher Education on higher education populations and migration patterns and their impact. In May, 1971, he presented a paper entitled, "There's a Tavern on the Edge of the Town,"

co-authored by P. Usinger of the Police Science Department at San Jose State College in California. Prof. Caldwell spent the summer of 1971 travelling in Europe.

ROBERT D. CAMPBELL (PhD 1949) is Professor of Geography at the University of New Mexico. He makes note of three publications in the past year: "Modeling the Navy Ecosystem," with A. L. Roark; "The Automobile Driver as a Variable in an Environmental System," with A. L. Roark and L. Schlesinger, and presented at a symposium on psychological aspects of driver behavior held in Holland in August, 1971; and "Evaluation and Redesign of Complex Man-Environment Systems," with A. L. Roark, and presented at the Environmental Design Research Association Meetings held in Los Angeles in January, 1972.

RUSSELL B. CAPELLE, JR. (MA, 1971) is an Instructor at the University of Rhode Island. "I am a PhD candidate at the University of Pittsburgh, with a dissertation title "Space-Searching Behavior: Recreation Space from the Urban Resident's Point of View." The research design involves uncovering basic dimensions of individual behavior toward reference activities using centographic and factor analytic methodologies. Courses taught at U.R.I. include Economics. History and Philosophy, Transportation and Introductory Quantitative Methods. My wife, Pam, is presently an undergraduate at U.R.I. Daughter, Kim, is nearing the two year old mark."

ALBERT CARLSON (PhD 1939) is Professor of Geography at Dartmouth College in Hanover, New Hampshire. He will be retiring from the department in June, 1972.

THOMAS W. CHAMBERLIN (MA 1937, PhD 1946) is Professor of Geography, University of Minnesota, Duluth. He travelled 4,500 miles in continental western Europe (June 22-July 16, 1971) on a

personal field trip to review regional geography.

KANG-TSUNG CHANG (MA 1969, PhD 1971) is an Assistant Professor at San Fernando Valley State College in California. He has co-authored the article, "Grid Square Mapping by Computer and Phototypesetter," in Journal of the Royal Town Planning Institute, 57 (1971), 268-273. At this spring's AAG meeting in Kansas City he will be giving a paper entitled, "A Modification of Dacey's County-Seat Model," which will be published in the 1972 Proceedings. In August of 1971 he was married to Lillian Hus.

PHILIP E. CHURCH (MA, PhD) is a member of the Department of Atmospheric Sciences at the University of Washington at Seattle. He will be retiring in June, 1972, and looks forward to spending more of his time with gardening, furniture making, and wine making.

CATHERINE ELIZABETH COX (MA 1942) is Assistant Professor of Geography at Fitchburg State College in Fitchburg, Massachusetts. She attended the fiftieth-year celebration of the Graduate School of Geography at Clark and "was very impressed and delighted with the program." Presently she is researching a new course focussing on geographic perspectives in conservation. She participated in a discussant at the Syracuse University Annual Meeting in December, 1971, and plans to attend the I.G.U. Congress to be held in Montreal during August of 1972.

EDITH HORNE CRANE (MA 1927) retired and formerly a resident of Wellesley Hills, Massachusetts, has moved and is now living in Stuart, Florida with her husband, who recently retired from M.I.T.

HAROLD F. CREVELING (PhD 1951) retired from East Central State College, Ada, Oklahoma in May, 1971. He taught

summer school as a Visiting Professor of Geography at the University of Oklahoma. He is now making plans to travel in Europe during the summer of 1972.

C. KIEWIET DE JONGE (BA 1947, MA 1949, PhD 1951) continues as Professor of Geography at San Diego State College in San Diego, California. He attended the fiftieth-year celebration of the Graduate School of Geography at Clark and found it "most enjoyable." Professor de Jonge has recently completed English translations of two books by the French geographer, J. Tricart: Introduction to Climatic Geomorphology and Landforms of the Tropics, Forests and Savannas. They will be published by Longmans of London in the series, "Geographies for Advanced Study," edited by S. M. Beaver. Dr. de Jonge notes that "these will be the first books ever to be published on these topics in the English language."

VERA K. DEAN (MA 1940, PhD 1949) notes: "Volume I of the history of Fitchburg, Massachusetts entitled, The City and the River, was released November 14th. I contributed to the two chapters on the landscapes of Fitchburg."

ROBERT P. DONNELL (MA 1971) is Instructor in Geography, Framingham State College, Framingham, Massachusetts. Taking a break from teaching full-time at Framingham and developing new course offerings for an expanded major program, he travelled through Midwest and Southwest U.S. in the summer of 1971. He has been following various developments of SERGE and continuing research for new courses and possible PhD topics on aspects of the geography of poverty and the environmental effects of economic development.

JOHN E. DORNBACH (PhD 1967) is Deputy Manager of the Applications Office, Earth Observations Division, Manned Spacecraft Center, National Aeronautics and Space Administration in Houston, Texas.

JOHN R. DUNKLE (PhD) is Assistant Dean and Professor of Geography and Physical Sciences, University College, University of Florida.

SIDNEY E. EKBLAW (PhD 1934) is retired from teaching at the University of Missouri in Kansas City, and is now a Professor Emeritus there. He has moved to Arizona where he is Visiting Professor of Geography at the Arizona State University in Tempe, Arizona. He writes: Our oldest son, Keith, has married and now has a son six years old; Keith has his PhD in mathematics from the University of Kentucky and is now teaching at Boise State College in Boise, Idaho. My oldest daughter is a hostess for TWA, flying international flights across the Pacific. Two other daughters are enrolled at Arizona State, and my youngest son is in fifth grade. At present I am encouraging students to study more geography and to get involved in geographic education, besides attempting to keep up with developments in physical and economic geography."

RICHARD ELLEFSEN (AM 1958) is currently Professor of Geography at California State University in San Jose. In 1971-72 he served as President of the California Council for Geographic Education. He is presently working on a paper to be read at the I.G.C. meetings in Montreal, entitled, "An Application of Remote Sensing in Land-Use Mapping and Urban Change Detection in the San Francisco Bay Area."

HELEN H. ELWELL (MA 1943, PhD 1944) is Professor of Geography and Anthropology at Stephens College in Columbia, Missouri. She enjoyed herself very much at the fiftieth-year celebration of the Graduate School of Geography at Clark and mentions that she will once again conduct seminars in India and Japan in the summer of 1972.

BART J. EPSTEIN (PhD 1956) is Professor of Geography and acting Chairman of the Department of Geography (spring quarter, 1971) at Kent State University. He was Program Chairman East Lakes Division Meetings at Kent State University, Fall, 1971. His article, "Geography and the Business of Retail Size Evaluation and Selection," appeared in *Economic Geography*, Vol. 47, No. 2, April 1971.

MARCIA DAVIDSON ERICKSON (MA 1959) is a housewife living in Norwich, Connecticut. Her husband, RICHARD B. ERICKSON (BA 1954, MA 1959) is Executive Director of the South-eastern Connecticut Regional Planning Agency. He has been appointed by Governor Thomas Meskill to Connecticut's Committee on Management of the Coastal Zone.

ROY J. FLETCHER (PhD) is Associate Professor, University of Lethbridge, Alberta, Canada. He presented a paper on Climatology at the annual meeting of the Canadian Association of Geographers, June, 1971. The summer of 1971 included travel and research in New York and Ottawa.

J. KEITH FRASER (PhD 1964) is Executive Secretary, 22nd International Geographical Congress, Canada 1972. In 1971 he attended AAG meeting in Boston, Regional IGU Conference in Budapest, Hungary and travelled in Western Europe. He reports he is almost one-hundred percent involved in the organization of the 22nd Congress in August in Montreal. Information concerning the Congress, including copies of the Second Circular and registration forms, are available from him at P.O. Box 1972, Ottawa, Canada.

ALFONSO J. FREILE (PhD 1961) is Professor in the Department of Geography,

University of Pittsburgh. He is in the process of writing a textbook on Middle America and an article about Vodoo and the Yoruba religion. His research continues in biometeorology and perception in climatology. Last summer was spent travelling through Panama, Chile, Brazil and Venezuela.

BOB FRENCH writes: "Along with Frank Hodges (Clark, 1966) and an anthropologist we have finally managed to create a Department of Geography-Anthropology. We serve about 900 students each year, operate a museum of man and culture, and have established a close liaison with the geographers on the Farmington (Maine) campus. When the 'freeze' thaws we hope to expand the staff and introduce a geography major here."

ROLAND FUCHS (MA 1957, PhD 1959) is Professor and Chairman of the Department of Geography at the University of Hawaii. During the month of January, 1971, he travelled extensively in Asia, gathering material for a forthcoming book, *Geography in Asia: Current Status and Needs*, which will survey the state of academic geography in various Asian nations. In August of last year, he attended the I.G.U. meetings in Budapest, Hungary.

ALEXANDER GASSAWAY (PhD 1971) gave an invited paper at the Second international Symposium on Circumpolar Health held in Oulu, Finland; entitled, "Natural and Economic Occurrences Influencing Per Capita Food Consumption Data in Northernmost Norway;" it will be published in *Archives of Environmental Health* (Chicago: AMA). He also presented a paper entitled, "World Population and Food Supply Problems: the U.S. Policy," for the Norwegian Ministry of Education at the University of Oslo. He did six months of research in Norway from

June-December 1969. His article, "Environment and Diet in Finnmark," appeared in the July 1969 issue of *Geographical Review*. He notes the birth of a second son, Jon Peter William, in August, 1971.

JOHN L. GEORGE (MA 1956) is Professor of Geography at Salem State College in Salem, Massachusetts. He attended the fiftieth-year celebration of the Graduate School of Geography at Clark and found it to be "excellent." He mentions his continued interest in urban planning and the fact that he has been working with several local communities. Last year he travelled to Greece to visit relatives, and also visited Paris and London. He has three children, aged twelve, ten, and four. "All is well," he concludes.

JON GLASGOW (MA 1959, PhD 1971) is Associate Professor of Geography at the State University College in New Paltz, New York.

JANET L. GLEN (1960-62) is presently employed as a librarian.

LOREN GOULD (AB, 1953; AM, 1959) is Director of Institutional Studies, Worcester State College. He writes: "March saw the publication of *Crafts for the Elderly*, a joint publication by my wife (Clark '53) and myself, resulting from several years volunteer work in Smith Nursing Home in Millbury, Ma. In June we made a half-hour show for Channel Five's 'Classroom 5' which has since been shown three times. As a result of my work in institutional research I have been in Denver and Washington, D.C. twice this year. In May I could not get above 11,500' on Pikes Peak and in September I could even get started up the mountain. My next visit to Denver is in February, 1972, so I expect to look at Pikes Peak from a distance. Last time I was in Colorado was in 1951 on the University of Illinois geology field camp under the late Harold Wanless and I found a great increase in suburbia out onto the plains. My wife is now involved with volunteer work at Grafton State Hospital and in our spare time we are planning another book, this time with a more philo-

sophical orientation as regards the elderly. All in all a most busy and satisfying year."

DONALD W. GRIFFIN (PhD 1963) is Associate Professor at Western Illinois University in Macomb, Illinois. He was recently appointed Director of the Institute for Regional, Rural, and Community Studies, a research institute newly established at Western. Last summer Prof. Griffin led a seven-week tour to Africa; he notes: The group consisted mainly of female school teachers -- I will never do it again."

ANDREAS GROTEWOLD (MA 1951) is Professor of Geography at Slippery Rock State College in Slippery Rock, Pennsylvania. His paper, "The Growth of Industrial Core Areas and Patterns of World Trade" appeared in the Annals of the AAG in June, 1971.

RICHARD D. HECOCK (PhD 1966) is Associate Professor of Geography at the Oklahoma State University in Stillwater. He attended the fiftieth-year celebration of the Graduate School of Geography at Clark and found it "most impressive and very enjoyable." He has received word of a renewal of an NSF grant to work with the Oklahoma City School System on the High School Geography Project. He has also been awarded a grant from the State of Oklahoma for continuing study of the patterns of recreational behavior among Oklahomans.

WILLARD C. HESSEN (MA, 1950) is an Instructor in Social Studies at Satellite High School, Satellite Beach, Florida. He says, "we are only 25 miles from Cape Kennedy and 45 from Disney World, so we invite old acquaintances who are in the area to visit us."

FRANKLIN HODGES (MA, 1966) is Assis-

tant Professor of Geography, University of Maine, Portland-Gorham. He notes: "There is a new department at U.M.P.G. -- the Department of Geography-Anthropology. I am presently Department Chairman and am enjoying teaching, researching, and living in Maine."

JOSEPH B. HOYT (PhD 1954) is Professor and Chairman of the Social Science Division at Southern Connecticut State College. Presently Dr. Hoyt is working on a revision of the Third Edition of his book, Man and the Earth, which is scheduled to be published in January, 1973. He is also doing research for a book which is prospectively titled, The Man-made Earth. A granddaughter Margaret Jean Hoyt, was born in December, 1970.

ESTHER KINCH HUNTER (MA 1940) is a homemaker. She notes: "My husband is Professor of Electrical Engineering at the University of Rochester. Though I'm a busy volunteer: medical librarian, church deacon, manager of a home for the aging, and perhaps most important, a necessary crew member at all the U.S. National and Regional Soaring Meets (the last is an ideal way to learn firsthand about areas of the country as one travels back roads for up to ten days, following a sailplane and pilot)."

GILBERT J. HUNTER (MA 1959) is a deliveryman for the Sanatoga Corporation.

ALBERT H. JACKMAN (PhD 1953), Head, Department of Geography, Western Michigan University, Kalamazoo, Michigan, continues with his research in the Arctic and Sub-Arctic of Canada and Alaska. He writes: "I gave a paper on the development of transportation in support of expeditions in St. Elias Mountains at Ann Arbor, April, 1970. Repeated the paper at Fort Greely, Alaska in May and held a Seminar on problems of military geography. My daughter, Jean, born in 1948 while I was at Clark, was married in June, 1970. My plans include a Sabbatical Leave, January 1 - August 31, 1972. A part of that time I will be

based at the Office of Arctic Institute in Montreal. The remainder of that time will be spent with a three-quarter ton pick-up studying the trade-offs between resource developers and resource conservationists."

JOHN B. JACOBS, JR. (AB, MA, PhD, 1971) is currently conducting research at Oxford University, Oxford, England.

PRESTON E. JAMES is Maxwell Professor Emeritus at Syracuse University. He taught at the University of Puerto Rico from January to May 1971. This first semester of 1971-72 he is offering a seminar on the history of geographical ideas at Syracuse. In February he will give a series of lectures at the University of the West Indies in Jamaica, and thereafter will spend some time in Mexico. Two books will be published in December: On Geography: Selected Writings of Preston E. James (D.W. Meinig, ed.) Syracuse University Press; and All Possible Worlds: A History of Geographical Ideas, Bobbs-Merrill.

J. GRANVILLE JENSEN (PhD 1946) is Professor of Geography at Oregon State University in Corvallis, Oregon. He found the fiftieth-year celebration of the Graduate School of Geography at Clark a "most worthwhile event."

JESSIE THORNTON JESSEMAN (MA 1941) is retired and a homemaker. Last spring she and her husband visited Europe.

CLARENCE F. JONES who taught at Clark from 1923 to 1942 is now retired from Northwestern University in Evanston, Illinois. He writes: "Considering our age, Mrs. Jones and I are quite well and we are enjoying life on the farm. We enjoy our two granddaughters and our two great grandchildren. Becky Ann, Ruth Ann's daughter, is now in the School of Speech at Northwestern University where Ruth Ann and her husband, Philip obtained their training in dramatics, children's theater

and television."

WILLIAM F. KANE, JR. (BA 1951, MA 1954) formerly Director of Industrial Development and Tourism for the Arizona Department of Economic Planning and Development in Phoenix, Arizona, is now Director of Industrial Development and Tourism for the State of Arizona.

HARRY B. KIRCHER (PhD 1961) has been promoted to Full Professor at the Southern Illinois University in Edwardsville. He notes that he conducted some successful teaching in Europe last summer.

RICHARD J. KOPEC (PhD 1965) is Associate Professor of Geography, University of North Carolina, Chapel Hill, N.C. He reports: "wife, Pauline C. Kopec is President and owner of Country Craft and Shop Inc., while I have completed research; now writing manuscript on "Vapor Pressure Patterns in a Small City." Recent publications: "Global Climate Change and the Impact of a Maximum Sea Level," Journal of Geography; "A Phenological Model for Southeastern United States, 1970," Map Series No. 1 (University of North Carolina Press).

KLAUS E. KRONER (1963-64) is Associated Professor of Industrial Engineering and Operational Research at the University of Massachusetts at Amherst.

MINNIE E. LEMAIRE (MA 1932, PhD 1935) is Professor of Geography at Mount Holyoke College in South Hadley, Massachusetts. Last year she attended the A.A.U.W. meeting in Dallas, Texas, in June and took advantage of a four-day field trip from Dallas to San Antonio to Houston to Dallas. She also attended the I.F.U.W. meeting in Philadelphia in August, served on the local arrangements committee for the Boston meeting of the A.A.G., and continues as an elected member of the A.A.U.W. Educational Foundation.

LAWRENCE T. LEWIS (MA 1962, PhD 1971) is Assistant Professor at the Western Illinois University in Macomb, Illinois. He reports the following work done in the past year: "A Factorial Analysis of the Black Community of Detroit," paper presented at the annual meeting of the West Lakes Division of the AAG in October, 1971 at Iowa City, Iowa and also presented at the Southeast Division meeting of the AAG in November, 1971 at Lexington, Kentucky; "The Applicability of the Gravity and Intervening Opportunities Models of Negro Urban Migration in the U.S.," a second paper presented at the West Lakes Division meeting of the AAG; "Dummy Variables: A Neglected Technique," in *Bulletin of the Illinois Geographical Society*, Vol. 13, December, 1971.

TOM LEWIS (NDEA Fellow, 66-67) is Assistant Professor, Manchester Community College, Manchester, Connecticut. He reports articles in the *Journal of Geography* and *The Social Studies*. Present efforts are directed toward dissertation research.

THEODORE J. LIARD (AM, 1948) is Chief, Geographic Names Division, U.S. Army Topographic Command.

MIRIAM and RICHARD LOCKHART (AM, 1957) report the birth of a third child and a first boy John Richard Levo Lockhart (March 8, 1971). While Miriam is busy mothering, Richard is Chief Development Services, Cambridge Redevelopment Authority and Development Consultant. The Lockharts say of their trip to England in the past summer, "how clearly geographic features read in regions where there is little wooded growth. In the Lake District, for example, one can trace by eye the origin and growth of mountain streams."

RICHARD F. LOGAN (BA 1936, MA 1937) is Professor of Geography at the University of California in Los Angeles.

Last year he spent from March to September in South West Africa, continuing research on the total geography of the southern Namib Desert, and cooperating with the Department of Nature Conservation and Tourism of the South West Africa Administration in the development of an overall plan for the future utilization of the desert area. He returned via Germany and Alaska and while in the latter visited his daughter, Sandy, who lives in Fairbanks. In October he gave a series of lectures at the Mackay School of Mines at the University of Nevada in Utah. At UCLA Prof. Logan is teaching The Geography of California, Field Techniques, Map Analysis, and Introductory Physical Geography. He is a member of the American Association for the Advancement of Sciences Commission on the Arid Lands.

ROBERT and ALETA LOOKER (AM, 1960) Robert is Deputy Director of Hartford's City Planning Department.

JOHN C. LOWE (PhD 1969) is Assistant Professor at George Washington University. He is working with the Urban Land Institute on a study for New Jersey on the impact of urban form and land use index on the cost of municipal services.

SHANNON McCUNE (PhD 1939; LID 1960) is Professor and Chairman of the Department of Geography at the University of Florida. He writes: "I am continuing my research on the Ryukyu Islands and have published a series of Research and Information Papers which summarize my research and reproduce materials which are out of print."

HENRY R. McCUTCHEON (PhD 1970) is Assistant Professor of Geography at Memorial University of Newfoundland. He happily announces the arrival of a second daughter, Tracy Ann, in October 1971.

WALLACE E. MCINTYRE (MA 1947, PhD 1951)

is employed with the U.S. Government. He reports nothing new this past year.

NATHAN (NATE) H. MELEEN (AM 1964) is Assistant Professor of Earth Science and Geography, Oral Roberts University. Dissertation research on strip mines and streams is progressing, slowly but steadily. Useful information should be forthcoming soon. A son, Michael David, was born August 30, 1971.

FREDERICK S. MERRIAM (BA 1939, MA 1946) is a sales representative for Waddell and Reed, Inc., New York City.

D. DAVID MILLER (1967-71, MA forthcoming) is an instructor in the Department of Geology at Loyola College in Montreal, Canada. Last summer he taught an introductory physical geography course at Sir George Williams University in Montreal. Besides teaching at Loyola in the fall, he "worked like a fool" on his master's thesis, "Growth Pole Theory as a Tenet of Regional Planning Policy in the United States." Over Christmas he made "an extended trip to Europe."

CLAIRA (PIROZZI) MONIER (MA) writes: "I have received a continuation grant (second year) to complete work on an orientation program for French Canadians in Manchester. This past October, I was appointed a member of the New Hampshire State Title I, Higher Education Advisory Committee. My husband, Robert, has been active on the New Hampshire political scene. This involves me in a good deal of campaign activities. He will be running as a delegate pledged to Nixon for the Republican Convention in San Diego in the March election. Currently, he is serving as a representative to the New Hampshire General Court; but we will both be campaigning to have him elected to the State Senate next fall."

BENJAMIN MOULTON (BA 1939) is Professor and Chairman of the Department

of Geography and Geology at the Indiana State University in Terre Haute, Indiana. Last spring he attended the Clark graduate program in Boston and "enjoyed seeing a new cloak on old problems." He spent his fourth consecutive summer in Alaska doing field work and will spend the spring semester of 1972 in Australia and New Zealand.

JOHN M. MOULTON (1958-59) is Professor of Geography and Geology at Hastings College in Hastings, Nebraska. He writes: "My wife and I travelled in Europe during May of 1969. In October 1971 we attended the regional meeting of the AAG at the Air Force Academy in Colorado Springs. Dr. Rodman Snead, formerly at Clark, also attended, and together with a group of his students from New Mexico we enjoyed the field trip devoted to the cultural geography of the mining area of Cripple Creek, Colorado."

RICHARD E. MURPHY (PhD, 1957) is Professor and Chairman of Geography at the University of New Mexico. He has published two papers in the past year: "Structural Landform Regions of the World," a presentation at the 1971 annual meeting of the AAG and published in the *Proceedings*; and "Regions of Erosional and Depositional Landforms," in *Science Reports of the Tohoku University, 7th Series (Geography)*, Sendai, Japan, March, 1971, pp. 213-220.

WILFRED G. MYATT (PhD 1958) is retired and now living in sunny southern California. She notes that she "misses the stimulation of dialogue with colleagues."

SALVATORE J. NATOLI (AM, 1957, PhD 1967) is Educational Affairs Director, Association of American Geographers. He writes: "No current new research, but quite a bit of reporting and writing. Working with a variety of exciting projects and activities with the AAG during a period of rapid social and economic change -- especially when the missions of a scholarly association are

being reassessed and redefined."

J. WARREN NYSTROM (BA, MA, PhD) is still Executive Director of the Association of American Geographers. He attended the fiftieth-year celebration of the Graduate School of Geography at Clark and enjoyed it very much. During the last year he travelled to eastern Europe and attended the I.G.U. meetings in Budapest. He also visited Spain, Portugal, Scotland, the northern coast of Africa, and some Caribbean Islands.

RALPH E. OLSON (PhD 1946) is Professor of Geography at the University of Oklahoma at Norman. He spent the summer of 1971 in the Grand Duchy of Luxembourg doing research.

G. ETZEL PEARCE (MA 1932, PhD 1940) is Professor of Geography and Chairman of the Department at California State College in Los Angeles. He has just completed a reference book in geography which will be published early in 1972 and is presently working on a book focusing on international boundaries. During the last year he has travelled to the French Riviera, the Netherlands, London, Alaska, East Africa, and South Africa.

RAFAEL PICO (MA 1934, PhD 1938, LLD 1962) is Vice Chairman of the Board Banco Popular de Puerto Rico. He attended the fiftieth-year celebration of the Graduate School of Geography at Clark and found it to be "an impressive ceremony." He recently delivered the keynote address, "Geography and Development in Latin America," at the meeting of Latin Americanist Geographers held at Syracuse University.

RICHARD PIKE (MA 1963) is a Geologist at the U.S. Geological Survey. He notes: "I have

published on the surface geometry of lunar and martian craters in *Nature* and *Icarus*, and on topographic hypsometry in the *Geological Society of America Bulletin*. I have been summarizing three years' work on lunar terrain analysis, including the numerical taxonomy of lunar topography (seriously!). I am also involved in terrain analysis supporting the 1975 Viking Mars landing."

THEODORE S. PIKORA (MA 1964) is Assistant Professor of Geography at Salem State College in Salem, Massachusetts. Presently, he is working on his dissertation at Boston University.

JAMES BRADFORD POWERS (BS 1965) has completed studies for a degree in Regional Planning at the University of Edinburgh, Scotland, and is now working at the University of London for a M. Phil. degree in Town Planning, which he will receive in June. He and his wife Cynthia anticipate the birth of a child in early March.

RICHARD E. PRESTON (PhD 1964) is Professor of Geography in the Division of Environmental Studies at the University of Waterloo in Waterloo, Ontario. He attended the fiftieth-year celebration of the Graduate School of Geography at Clark and found it "most satisfactory in every respect." He has recently published "The Structure of Central Place Systems," *Economic Geography* (April, 1971), 136-155, and "The Changing Form and Structure of the Southern California Metropolis: Part I," *The California Geographer*, Vol. 12 (1971), 5-20.

ETHA M. PRUSER (MA 1954) is Professor and Head of the Department of Geography at East Stroudsburg State College in Pennsylvania. Last summer she travelled through Central America via Tica Bus on the Pan Am Highway, beginning in Guatemala and continuing to Panama. She is returning to Guatemala and Honduras during December, 1971 and January, 1972, gathering information on the potentials for tourism in Honduras. She was a respondent for one of the sessions at the National Council on Geographic Education meetings held in Atlanta in November, 1971.

LOUIS O. QUAM (PhD 1938) is Chief Scientist of the Office of Polar Programs at the National Science Foundation in Washington, D.C. In the past year he completed an AAAS Symposium Volume published by the AAAS (American Association for the Advancement of Scientists) and is presently editor of *Research in the Antarctic*. He was awarded an Honorary Fellowship by the American Geographical Society in November, 1971.

JOHN RADFORD (1968-1970) is teaching the second, third and fourth year levels in geography at York University, Toronto and trying to find time to write a dissertation.

ANN L. REIZER is a housewife, presently living in San Luis Obispo, California with her husband and young daughter, Kristina.

EDWARD RISLEY (BA 1946, 1946-48) works in the Earth Resources Observation Systems Program of the U.S. Geological Survey. He is Associate Editor of *The Journal of Remote Sensing of Environment*, published by the American Elsevier Press and serves on the Program Committee of the Symposium on Operational Remote Sensing (held in Houston, Texas in 1972) and on the Finance Committee of the Association of American Geographers.

WALTER W. RISTOW (PhD 1937) is Chief of the Geography and Map Division at the Library of Congress in Washington, D.C.

INA C. ROBERTSON (1924-1925) announces the dedication of "Robertson Hall," a four-story building in Valley City, Ohio.

JOHN KERR ROSE (1931-32) is a Senior Specialist at the Natural Resources and Conservation Congressional Research Service, Library of Congress, in Washington, D.C.

LEWIS D. ROSENTHAL (1966-69) is Assistant Professor at the University of Maryland.

GYWN ROWLEY (Visiting Professor, 67-68) is in the Department of Geography at The University in Sheffield, U.K. Recent publications include: "Elections and Population Changes," *Area*; "The Greater London Council Elections of 1964 and 1967: A Study in Electoral Geography," *Trans. Institute of British Geographers*; "Central Places in Rural Wales," *Annals of the Association of American Geographers*. He says that the family is well. Jane is eight and Jonathan Mark is nearly 2. And all send best wishes to friends.

ADA M. SHAWKEY (1947-48), 1953) is Associate Professor and Chairman of Geography at Framingham State College in Framingham, Massachusetts. She notes that a program for majors in geography was instituted in September of 1971 after two years of planning. Thirty-four students are now majoring in geography at Framingham. Last August she travelled to Prince Edward Island.

JAMES A. SHEAR (PhD 1948-1950) Professor, University of Georgia, continues his research in Hydroclimatology--particularly 'drought.'

SUK-HAN SHIN (MA 1967) is Assistant Professor at Eastern Washington State College. He writes that he has almost finished his dissertation at the University of Pittsburgh. His work focusses on a quantitative analysis of the quality of residential environment in Pittsburgh. At Eastern Washington State he has organized a new course, "Environmental Conservation," which so far has been quite successful.

AVSHALOM SHMUELI (1969-1971) is currently on the staff of the Geography Department at Tel-Aviv University,

Israel. He says: "I am going to finish my PhD work in April, 1972."

SUE C. SIMONDS (MA 1971) continues teaching Introductory Geography and U.S. History at Roger Williams College in Providence, Rhode Island. "The major event of the past year was the completing of my thesis and receiving of my degree. For two weeks this past January I toured the Southeast in my VW camper. This summer I plan a cross-country camping trip to visit geographic and historic sites and add to my slide collection."

ROBERT B. SIMPSON (MA 1933, PhD 1941) is still Professor of Geography at Dartmouth College in Hanover, New Hampshire.

HARLEY E. SLOTT (MA) is working on a doctorate in education at Western Kentucky University in Bowling Green, Kentucky. He writes: "After five years of teaching (four at Chicago State University) I thought it might be a good idea to take some ed courses."

ALBERT W. SMITH (BA 1943) is Professor of Geography at the University of Colorado.

DAVID A. SMITH (BA, MA) is a financial consultant for Galbreath Mortgage Company in Columbus, Ohio. He writes: "My duty here is to create a new department which will offer site selection studies and feasibility analyses for industrial development projects, but all things considered, I'd rather play golf."

HELEN BOYER SMITH (MA 1938) reports nothing new in the past year.

JOHN A. SOBOL (MA 1959) is Professor of Geography at the Memphis State University in Memphis, Tennessee.

PAUL J. SORVO (BA 1953) is a cartographer in the Geographic Names Section of the U. S. Geological Survey. He and his wife live in Silver Springs, Maryland.

FRANK SPARICIO (MA, 1963) is the Assistant Secretary of the Hartford Insurance Group. He writes: "No news of a particularly exciting nature. I'm presently serving on a Charter Revision Commission to determine form of government most suitable for Simsbury, Connecticut, where my family resides."

RAYMOND E. SPECHT (MA) is Director of Campus Planning for the University of Wisconsin at Stevens Point. He is also administrator of the University's Semester Abroad Program for the 1972 Spring and will be guiding forty students through Europe.

ROBERT G. STONE (1931-1932) says: "I retired in May, 1971 from my position as Scientific and Technical Information Officer of the Air Weather Service at Scott AFB, Illinois and moved to the Blue Ridge mountains of Pennsylvania near Fairfield which are convenient to activities of the eastern seaboard centers. For the time being I'm involved in some practical geographic problems in fixing an old house and caring for twelve acres on the slopes of Jacks Mountain overlooking the Gettysburg Basin and Piedmont."

MARGARET TINDAL (MA 1970) is an instructor of geography at Coppin State College, Baltimore, Maryland. Presently, she is doing research on an individualized approach to teaching college geography. This coming summer she is planning visits to Europe and to the Southwestern United States.

RAY W. TOBEY (MA 1953) is retired. He writes: "There really is nothing to add to what has been reported several times in past years. When I retired from teaching in 1954 I returned to the house where I was born in Fairfield, Maine. I have found that retirement years are very busy ones. I have been doing some research in local history, not for publication, but for

my own satisfaction. The results are being passed along to our local library. Much of my time is spent caring for my garden and grounds or working on my rocks and minerals and other collections. My years at Clark, especially Mr. Burnham's course in cartography, helped me greatly when I returned to teaching. Even now I find myself adding to my rather large collection of maps, and when a special map is needed for a special occasion, it is good to be able to produce it."

GRADY TUCKER (PhD 1957) is Vice President of Larry Smith and Company, Inc.

MAZIE A. TYSON reports that she has been ill but hopes to be better soon.

LESTER UNTERBERG (MA) is living in Allentown, Pennsylvania and has been promoted from Regional Director to Vice President of Candeub, Fleissig and Associates.

EUGENE VAN PLEEF (PhD 1925-1926) is retired from Ohio State University, Columbus, Ohio. Recent publications include: "Jobs for the Realtor," *Journal of Property Management and City Planning*; "The Rise and Possible Decline of Columbus," *Columbus Forum*; "Whether Geography," *The Professional Geographer*.

WILLIAM VAN ROYEN (PhD) recently celebrated his second retirement, this time from work as Director of the Division of Environmental Sciences, Army Research Office. In the coming year he hopes to complete three articles for which he has gathered material, and also hopes to do some work on a complete revision of the atlas, *The World's Mineral Resources*.

H.E. VAN TUYL, JR. is working for the U.S. Government in Washington D.C. He reports nothing new for the past year.

CHARLES B. VARNEY (MA 1953, PhD 1963) is a Professor in the Department of Geography-Geology at the University

of Wisconsin at Whitewater (formerly, Wisconsin State University).

PAUL P. VOURAS (MA 1951) is Chairman of the Department of Geography at William Patterson College in Wayne, New Jersey. Last summer he visited the national parks.

LILLIAM EDMUND WALLACE (MA 1943) is retired from Westfield State College and reports nothing new.

CAROLYN C. WEISS (1968-1970) is a Staff Associate at Southern Illinois University in Carbondale, Illinois. Ms. Weiss is engaged in a research project on "The Perception of Graduation Series in Cartography: The Influence of Pattern Texture." She is also collaborating with SIU's Committee for the Future on a remote sensing project for the "New Worlds Week."

NIEL WEST (MA 1967) is currently at Hunter College, The City University of New York.

SEYMOUR WEST (MA 1941) is a Contact Specialist for the United States Government in Philadelphia. His eldest son, Alan, is a junior at Clark.

GARY WHITEFORD (MA 1968) is Assistant Professor of Geography at West Texas State University in Canyon, Texas.

BERNT L. WILLS (1942-43) continues as Professor of Geography at the University of North Dakota, Grand Forks.

DAVID C. WINSLOW (PhD 1948) is Professor of Geography and Director of the Aerospace Workshops. He participated in the National Aviation System Review Conference; as Panel Chairman, he is revising the M.I.T. textbook by Schriever and Seifert, which extends aviation transportation into the 1980's and beyond. Last year he also attended the Systems Oriented Institute on U.S. Air Transportation at Middle Tennessee State University, and was honored as

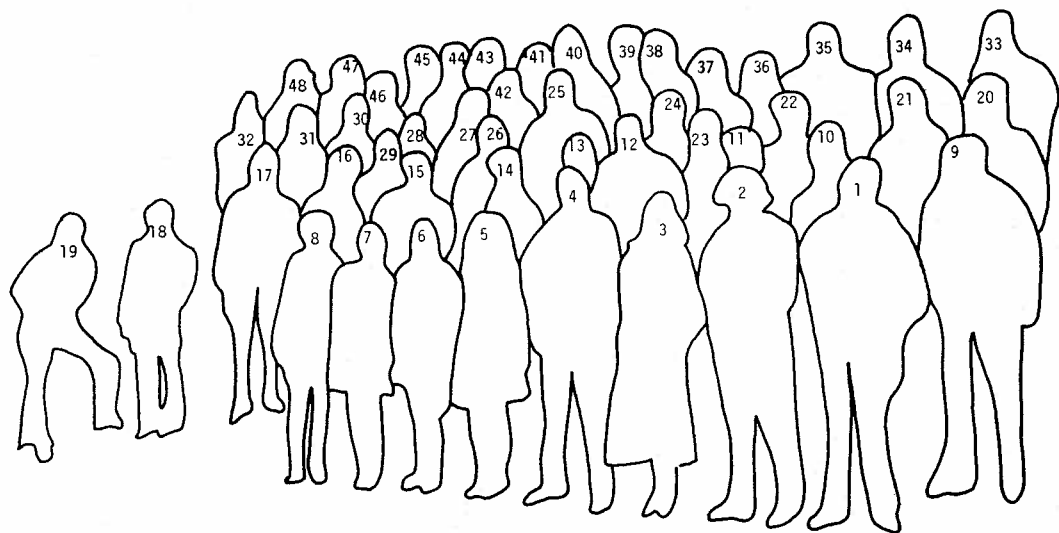
a National Lecturer of Sigma Xi.

INGRID HANSEN WOOD writes: "I sit here in my kitchen waiting for some incredibly yummiie smelling Danish pastry to bake, and I think about the job I have standing over a counter all day long stirring up money, and I think about the walk around the block with Homer and the park on the hill where we watch Worcester, and I think about keeping the dirt and the robbers out of the house, and I think about all the mending I have to do and the letters to write, and occasionally I think about geography, and often I think why isn't there a geography of housewives, or a geography of families? Or is that for me to write? Oh my word, those pastries are just gorgeous. Cheerio."

MARY VOGT WOODLAND (MA, 1942-1943) has been elected Trustee for the Village of Homewood, Illinois.

MARION I. WRIGHT (MA 1946) is presently teaching at the Rhode Island College in Providence, Rhode Island. In regard to travels, she writes: "I found a trip to the fifteen republics of the USSR and Mongolia full of the unexpected and most rewarding."

LEO J. ZUBER (1947-1948) is Acting Assistant Regional Administrator for Community Planning and Management, U.S. Department of Housing and Urban Development (HUD), Region IV, Atlanta, Georgia



1. Walter Murphy
2. Harry Cummings
3. Ronnie Mason
4. Joe Thornton
5. Peggy Lentz
6. Sue Duquette
7. Judy Dworkin
8. Terry Laskowski
9. Al Hecht
10. Bob Beck
11. Norm Carpenter
12. Bill Carolan
13. Sister Annette Buttner
14. Melsetta Harrison
15. Perry Massey
16. Bob Morrill
17. David Seamon
18. Kao Liaw
19. David McCauley
20. Duane Knos
21. Henry Warman
22. Darwin Kelsey
23. Jim Cerny
24. Graham Rowles

25. Larry Lewis
26. Bruce Ryder
27. Joe Copes
28. Diana Conyers
29. Tom Hankins
30. Frank Mills
31. Connie Gediman
32. Bill Emerson
33. Dick Peet
34. Bobby Wilson
35. Nick Crawford
36. Mark Mujwahuzi
37. Len Berry
38. Gordon Hinzmann
39. Bill Koelsch
40. Gary Roboff
41. Dick Howard
42. Dutch Klugman
43. Walker Banning
44. Alan Marcus
45. Bob Cotti
46. Mary Lou Orcutt
47. George McCleary
48. Marc Eichen

