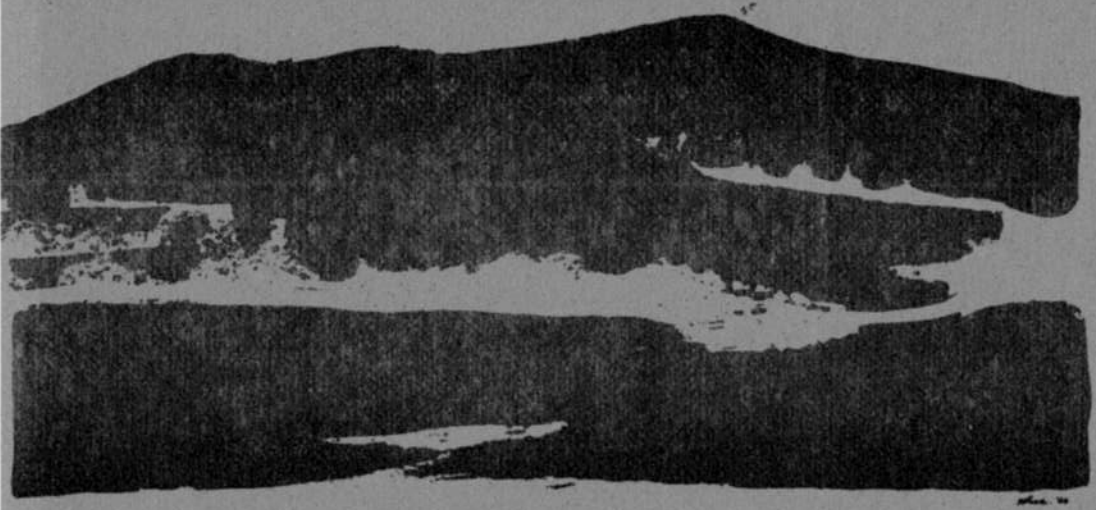
THE MONADNOCK



CLARK UNIVERSITY
GEOGRAPHICAL SOCIETY

Vol. XLVIII
June, 1974

THE MONADNOCK

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THE MONADNOCK is the annual alumni magazine of the Clark University Geographical Society (CUGS) and is published in Worcester, Massachusetts.

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EDITORS' NOTES

In regard to contents, this year's edition of the Monadnock -- the forty-eighth -- is little different from past issues. Physical geography, resource management, environmental perception, and geographical education continue to be major concentrations in Clark geography, and the following papers echo these concerns. Although the contents may be much the same as in the past, we can say as editors that the list of contributors is wider than usual. Though the majority of articles are still written by graduate students, we also have contributions from a professor in Clark's Art Department (Peter Barnett), and a psychology undergraduate (Donald Bliwise).

In getting this year's issue of Monadnock in shape we would like to thank the many alumni who continue to support us so generously, René Baril, who did the typing, and Paul Mathesey, who took the group photography, which by the way, gives a fair picture of what the redesigned Workroom is like. Please note that after many years of faithfully serving countless geography people and many others in the Worcester community, the reassuring and handsome facade of Bove's cafe makes its appearance between the covers of Monadnock (see p. 31). May it and the pieces that follow revive fond memories of Clark geography.

Ken Gelman
David Pijakwa
David Seamon

co-editors

DIRECTOR'S MESSAGE

For those who recall last year's message, much of what I said then continues to apply. Consolidation and development of the School's various programs -- graduate and undergraduate -- proceeds as we adjust ourselves to changes and uncertainties within and outside the university.

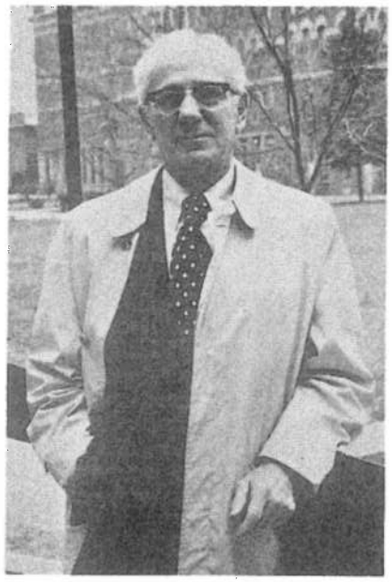
Some faculty additions: Harry Schwartz, formerly Chief of Research, Northeast Division, Corps of Engineers, as part-time Professor of Environmental Studies; and Ranganathan Ramachadran of India and Stephen Feldman, each Visiting Professor for a semester, have enriched our offerings.

On the other hand, we shall miss sorely Henry Warman, for whom this year marks his formal retirement, and George McCleary, who has resigned his post to go to the University of Kansas. There is so much that I would like to say about Henry -- his contributions to the School in both good and difficult periods; his concern with traditions and yet his flexibility and sensitivity to the need for change; his patience with students; his nationally and internationally-recognized work in Geography and its Teaching. For well over a quarter of a century Henry Warman has been a "fixture" at Clark. He has carried the torch for geographical education which we shall continue, far the wiser for his efforts. George McCleary, too, will leave a great void. He has created a vital, pulsating Cartography program for undergraduates and graduates, and teaching, research and map facilities, that are second to none. Moreover, he has played a central role in the general development of the School: the planning of our new facility, the preparation of new courses, the strengthening of team identification and spirit.

The lead taken by the School within the university in initiating and in bearing teaching and research responsibilities for the Cross-Disciplinary Environment and International Development programs has added new dimensions to our activities. Faculty, graduate students and undergraduates are converging in a variety of new ways, and although this is only a pilot year, enough experience has already been gained to justify our initial expectations.

This year's entering class includes students with a wide variety of interests and life experiences. It is difficult to measure that intangible thing called "quality", but by whatever standards we might employ, I can describe this year's group as being of unusually high quality; those who have been admitted for next year are of the same cut. Thus, the excellence of our graduate student body is being maintained, despite national concerns for the support and future of graduate student body size has leveled off at about 40 - it continues to include persons from different countries and different classes who find in the School of Geography a challenging educational and social environment. In general, the "match" between our faculty and students is a good one, and the collegial atmosphere that characterizes relationships continues to be a major asset for all of us.

Saul B. Cohen



Dr. Henry Warman

Scientific Information About Man-Made Environmental Hazards

by Bret Halverson and David Pijawka

Background

There has been an increasing concern, particularly in the developed countries, over problems of environmental change. It is possible to offer a number of reasons for this interest. The application of scientific and technological advances to the control and manipulation of the environment has created a set of new hazards. Partly as a function of these hazards, measurement techniques have been refined and environmental monitoring expanded, revealing hazards which may have existed for some time, but because of their insiduous nature they have remained undetected. One may speculate that growing public concern is a response to awareness of the consequences of the hazards as reported by scientific journals and the media.

The realization of the extent of environmental changes and the concern which this has generated in the scientific community resulted in the formation of SCOPE (Scientific Committee On The Problem Of The Environment) by the I.C.S.U. The S.C.O.P.E. was established as a means of marshalling the scientific resources of the ICSU through a series of workshops to examine the characteristics of the environment which man is altering. Some important areas of concern included the bio-chemical cycle, ecotoxicology, natural resource assessment, and societal response to environmental stress.

As an initial step in the workshop on societal response to environmental stress, a seminar was held at the Holcomb Research Institute, Butler University, "to consider the use of scientific information on man-made hazards by decision makers and those affected by the hazards." As with the other workshops the effort had an international perspective and crossed disciplinary lines. The seminar examined the available

information on environmental parameters, the methodologies which can be used to measure these, and recruited the best available scientific information as a corpus of advice for environmentally concerned agencies, organizations, and research centers.

As part of the post "seminar" process Professor R. Kates and Professor M. McClintock organized and coordinated a four day interdisciplinary seminar at Clark University on the "Societal Response to Scientific Information on Man-made Environmental Hazards." The program covered a wide range of issues concerning the problem, general research trends, case studies, monitoring, and methodologies. The paper submitted here presents some of the findings of a larger study presented at this conference. Essentially the paper involves a comparative analysis of two scientific journals -- Nature [U.K.] and Science [U.S.], both of which represent the more conservative views of a wide range of scientific research, i.e., that these journals do not reflect what can be termed radical or activist scientific research.

The Paper

This paper will present the preliminary findings of an analysis of Science and Nature 1945-1972. The basic aims of this examination are seen within the context of the broader aims of SCOPE -- the use of scientific information about man-made environmental hazards and the societal response to this information. The aims of this presentation are to ascertain:

1. The degree to which scientific research focuses attention on man-made environmental hazards.

2. The characteristics of the hazards; this would involve an examination of each hazard as to its type, source, impact area, and severity.

3. The nature of the examination of the information by the scientists. This generally will depict the scientists stated perception of the significance of the scientific information to society.

In operationalizing the above three general aims, and taking into account the lack of suitable content-analysis theory of information of communication, we initially carried out a pilot study to develop an appropriate methodology; from the results of this pilot study, it was decided to concentrate on (a large sample of) 'Research Reports' in Science and 'Letters' in Nature for the following reasons: These represented the major sections for the presentation of voluntary scientific research on current issues. These two sections were the only major ones that were strictly comparable as they both emphasized the analysis or description of scientific experimentation. The study was undertaken on two levels; the examination of research reports for the reasons outlined, and a series of time cross sections were conducted both as a control, and as an indicator of the complete presentation of scientific information (including the subjective element as it may manifest itself in an editorial). Each of these content categories was broken down into the total number of articles, number of all hazards, (natural, social, and man-made), with the exception of disease, and man-made environmental hazards. A man-made environmental hazard is defined for computation as an event, a situation, or a circumstance initiated by or through mans' activities and transmitted through or acting on the environment in a detrimental way.

Each given MMEH publication was classified according to:

1. The identification of the hazard by type and source, for which we had four broad categories:

   A. Radiation and Nuclear Energy Hazards

   B. Insecticides, Pesticides, Fungicides

   C. Pollution of all forms (material pollution)

   D. Other (noise, ecology, conservation)

It should be pointed out that these broad categories were designed for computational purposes; more detailed and specific identification of the hazard's type and source, media of transport, and dispersion was carried out and recorded for future research efforts.

2. The impacted media or organism.

We graded each hazard publication according to the impacted media on a four point severity scale:

1. The hazard could be measured but caused only minor environmental stress, i.e., in the form of low property damage costs and low animal death rate or damage.

2. The hazard was sufficient to have an irritation effect on human health, i.e., eye irritation due to smog, and cause considerable environmental stress in a medium property damage costs and medium animal death rate or damage.

3. The hazard was sufficient to have a considerable effect on human health, i.e., curable illness, and cause irreversible environmental stress in the form of high property damage cost and high animal death rate or damage.

4. The hazard was sufficient to have a high probability of human death or have serious effects on human health.

This scale was applied to the following five impacted media or organisms: 1. air; 2. water; 3. land; 4. 4. man; 5. general impact, no specification.

3. The stated significance of the hazard by the scientist to society. This was measured on a seven point scale:

    1. no significance stated

    2. more research needed

    3. more research needed due to implication of the hazard

    4. the societal response should be to

        A. monitor

        B. restrict or constrain

        C. mandate or prohibit

        D. remove mandate

Findings

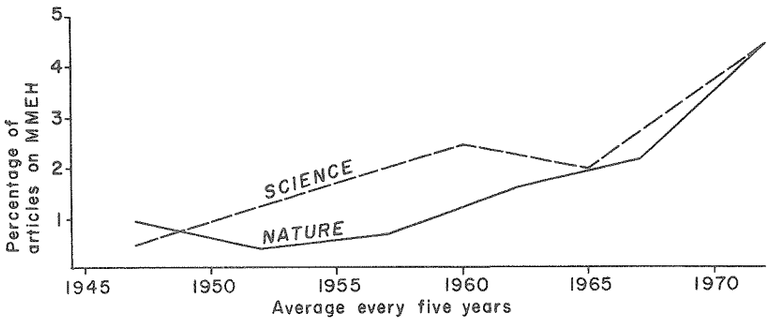
(A) Graph 1. Percent of MMEH of total Scientific Research

The most striking aspect is the research explosion which has occurred in all scientific fields since the War; the number and percentage of publications of scientific research on MMEH has increased almost exponentially, e.g., 1945 revealed 1.33% of research devoted to MMEH; 1952, 1.19%; 1964, 2.41%; 1971, 6.73% in Nature. Science also exhibits a paralleled trend, 1945, 0.94%; 1952, 1.04%; 1964, 2.27%; 1971, 4.02%. The general trend is upward sloping. There are however a number of exceptions to this generalization. In Nature, in the late 1940's there is a greater concern for hazards than in the 1950's respectively. This phenomenon can be readily explained by the emphasis placed at this time on atomic energy as a hazard. The concern basically involves the control of nuclear energy -- the need for international legislation to prevent unpeaceful uses. This phenomenon is seen in Science in the early 1950's. Science shows a drop in concern over MMEH in the late 1960's; due to the following possible explanations:

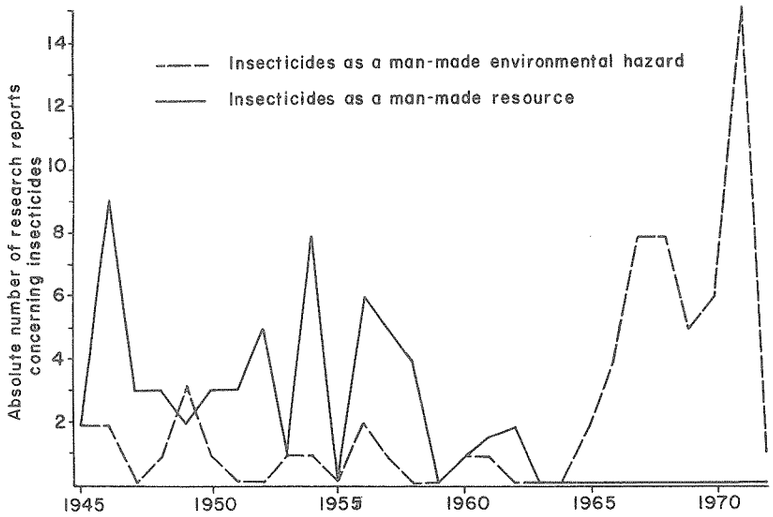
1. a considerable increase in the number of research reports being published

2. the cessation of nuclear tests resulted in a decline of research money available.

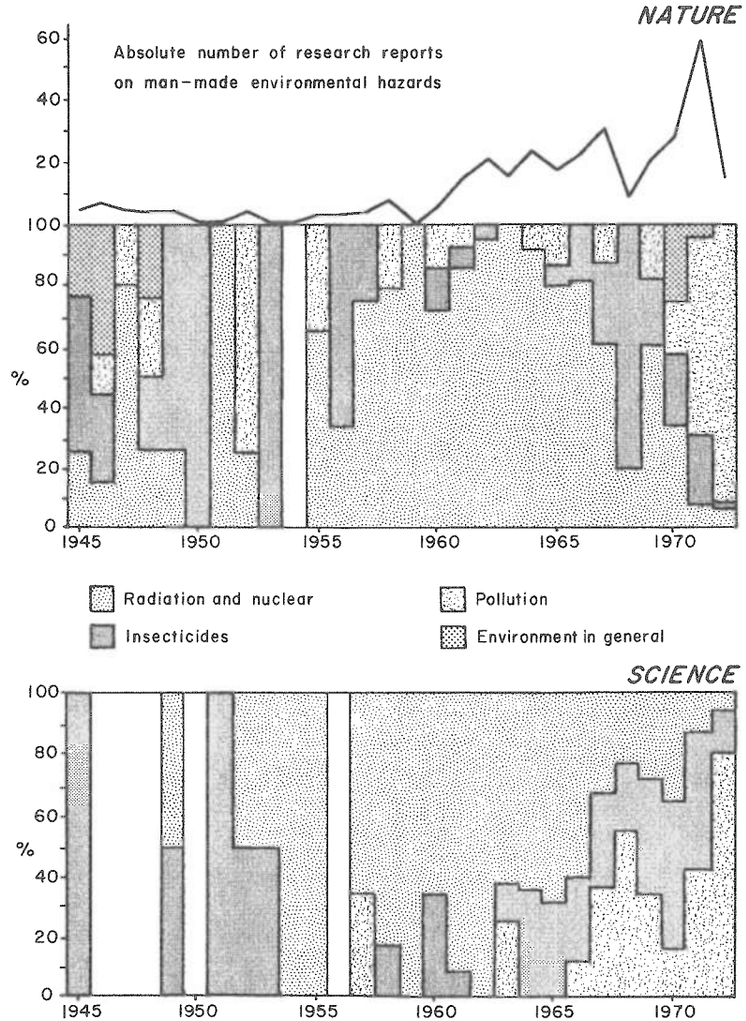
Nature parallels this by showing a strong decrease of concern in 1968. A strong upward curve persists from 1969 to 1972.



Graph 1 Man-made environmental hazards research as a percentage of total scientific research.



Graph 3 Insecticides as a man-made resource vs. insecticides as a man-made environmental hazard.



Graph 2 Proportion of research reports by category of scientific research on man-made environmental hazards -- an index of scientific concern.

(B) Graph 2. Percent Research reports by category of Scientific Research on MMEH.

In both Nature and Science overall exhibits strong concern with radiation and nuclear hazards. This peaks in the early and mid 1960's corresponding with the period of major power testing. This contention is supported by the strong decrease in publications in the late 1960's and especially in the early 1970's. This decline with concern in radiation and nuclear hazards is substituted for by an increasing concern with insecticides and pollution. Nature showed the development in 1970-71 of a concern with research on problems of conservation, ecology, and environmental stress: traffic related to mental ability, noise. The percentage increase however is not significant.

(C) Graph 3. Insecticides as a man-made resource and Insecticides as a man-made hazard.

This graph reveals the overwhelming amount of research devoted to insecticides as a resource relative to insecticides as an environmental hazard in the 1950's. Concern in these experiments generally involved the effectiveness or potency of the chemical. Quotes are provided which exemplify the situation. 1946: "More research must be done before sufficient data exist for choosing the most suitable insecticide for any particular use"! 1949: "benzene hexachloride is more effective in the fight against the pistachio leafhopper than is nicotine and lead arsenate; it lasts longer and is more toxic." 1950: "These experiments suggest that both DDT and benzene hexachlorine should be effective as residual insecticides." The peaks for pro-insecticide research, in Nature, are seen in years 1946, 1952, 1954, 1956, 1957, 1958. During the 1940's and 1950's research on insecticides as a potential hazard was limited in number and in hazard findings. However by 1963, pro-insecticide research virtually ended, and research of insecticides as an environmental hazard became significant and more popular. In Nature, 1971, is seen as the 'earth year' with the largest number of research experimentation on insecticides as an environmental hazard. It should be noted that Carson's Silent

Spring was published in 1962! Science reveals a similar pattern, except for an increase in research on the analysis of new insecticides in the late 1960's. Generally, the pattern is one of a gradual decline from the late 1950's of research on pesticides as a resource. The new stage begins in the early 1960's.

In Nature 1.65% of all scientific research in the past 25 years concerns man-made environmental hazards as reported in 'research reports'.

2% of scientific information in the past 25 years concerns environmental hazards (excluding disease -- unless caused by environmental conditions, e.g., pollution and respiratory disease, drugs, social hazards, food additives). Environmental hazards includes man-made environmental hazards plus natural hazards. Only 0.2% of scienfitic research involve natural environmental hazards. Noticeable years for research on natural hazards are 1971 and 1968, where 1.3% and 0.73% of all research concerned natural hazards, respectively. Very little research has been published on natural hazards within normal science. The amount of research on man-made hazards is relatively small considering the extent of environmental problems. Of the research sampled, 54% concerns radiation and atomic energy hazards, 19% of the hazard research involves insecticides as a man-made hazard, 23% of the man-made hazard research involves pollution both air and water. 1% involves wildlife perservation, i.e., effect on ecology of an animal species, e.g., whales. 1% of the research involves ecological studies in general. 2% of the scientific research on man-made hazards involves studies on environmental stress such as noise, traffic problems.

Time Cross Sections

Increase in research in Man-made Hazards is particularly evident in the 'research papers' (articles reviewing a field of knowledge)-- an increase in the last two years from 6.9% to 17.2% in Science. This section remains stabilized over time, in Nature, showing no increase with time in the scientific consideration of man-made environmental hazards. Science again shows that News and Comment, which

chiefly includes measures that have been carried out, supports the contention that publications on man-made environmental hazards have increased considerably in recent years -- this is clearly shown in the increase between 1965-1971 from 3.7% to 17.2% and a 1972 figure of 22.8%. There are relatively no man-made hazard involvement in Nature within the section "News and Comment". In Science the figures for editorials and 'articles' are exceptions to the overall trend -- the reason for this appears to be that these sections of Science are used for publication of more general scientific information -- for example, trends in science education. The 'letters' in Science and Nature reflect the overall trend and in particular the increased interest in the scienfitic community with man-made hazards. These may reflect the social responsibilities of scientists -- what they are prepared to say in correspondance as opposed to what they are prepared to say in technical reports.

Nature	% MMEH of total scien. Info.	% Group Reports	% Research Reports
1945	1.33	2.4	1.33
1955	1.01 2.1% of all	7.7	0.61
1965	1.76 scient. info.	0.0	0.76
1972	5.09	26.0	4.53
1971	6.38		6.73

Stated Significance of MMEH

It was noted earlier that the stated response of the scientists to their findings was scaled on a four point impact -- severity scale. The journal of Science was examined with the objective in mind of measuring sicentific societal commitment -- do scientists point out the severity, the degree of hazardness, the potential danger, of the man-made hazard they are investigating. From our preliminary research it can be seen that little is stated by scientists concerning the impact on society of their research, and no enlightenment concerning the direction and magnitude of the required community's response to alleviate environmental hazard stress. Virtually all

statements fall in the first category, with a few in the second in both scales -- the severity scale and the response scale, respectively. It has been assumed by many scientific information alone will be itself sufficient to affect private decisions or to elicit appropriate public decision. Because of this assumption we feel many scientists prefer not to be concerned with the varied and vexed problems of communicating the implications of the research results. Admittedly most scientific information is made and disseminated in the hope that it will provide an improved basis for action. However unless fairly conscientious consideration is given to the way in which scientific information is handled and presented it is less likely that appropriate types of action will take place. Our analysis of scientific information provides a realization of the lack of research implications for the community.

SCIENTIFIC CONCERN - Themes Through Time In Nature

Year

1945 1. Interference by man of natural phenomena. Ecological studies are stated as being needed. (Flood control, grazing, forest conservation).

2. Need of control of atomic energy. Need for international legislation to prevent unpeaceful uses.

3. Insecticides -- strong emphasis with chemical potency; little consideration with side effects.

1946 1. Ecological theory one theme in 1946. (Removal of irreplaceable resources by man).

2. An emphasis on experimentation with the effectiveness of insecticides.

3. First experimentations carried out on effects of DDT on man and fish. Some implications mentioned. "DDT applications should be made only with great caution in waters, at least where they are an important item of diet."

4. Editorial focus on ethical problems of development of the Atomic Energy Act.

1947 1. Research foscuses on problems concerning atomid energy: ethical problems, prevention and control, radioactivity.

1948 1. Conservation of wildlife.

2. Radiation. "a dose of radiation above accepted tolerance presents hazards to the individual: sterility, cancer, genetic damage, -- the effects are cumulative."

1952 -'54 1. Articles relating atmospheric pollution (SO_2) to man and land. "Effects of SO_2 on plant growth and respiratory regulation related to the nature of the environment."

2. Measurement of insecticide potency persists.

1955 1. Effects of radiation strongly developed: affects on embryonic development, chromosome damage, radiation protection and control. The first major report on Radiation Hazards from Nuclear Explosions and Power appears: sources of contamination, emission, transmission of radiation, genetic effects, waste problems, problems of accidents, public health problems, storage periods, standards for radiation protection.

2. Air pollution is another strong concern: debates over Clean Air Act, methods of abatement, legal acts.

1956 1. Insecticide poisoning in fish and plants.

2. Radiation and x-ray physiological damage.

1958 1. Concern chiefly with radioactive contamination: monitoring, biological findings. "The accumulation of radioactive material in biological structures as a result of fallout from nuclear explosions presents a continuing and increasing problem in relation to human food supplies. Radio strontium levels in the bones

of children are higher than in adults. We are not aware of the previous publication of autoradiograms of biological structures due purely to general fallout radioactivity."

1960 1. Radiation with a high degree of concern over the removal of strontium from milk!!! Need to develop methods for use in removing radio strontium from milk in the event that the concentration of the radioisotopes of strontium within food should become a health hazard. "The availability of strontium-90 from soil to plants becomes an important factor in hazard research."

2. DDT as a hazard.

1961 -'64 1. Concentration on relation between human biology, food chain, and radiation. "Caesium 137 content in human body." "Lead-210 and Plutonium in foodstuff and human tissues." Concern with the general contamination of the landscape by animal absorption of fallout and the ecological impact.

1965 1. Radiation as a hazard persists in research.

2. Insecticides effect on wildlife.

1966 1. Radiation related to biology of man. "... should test food before distribution over time. It must be indeed be acknowledged that any compound causing cytogenitical or cytotoxic damage must be considered a potential hazard to any living cell or cell system -- including man."

2. Insecticides contamination to animals.

1967 Increased research on:

1. Pesticides: destruction of plants, animal population damage, effects on hormone structure, food chain linkages, interaction with the nervous system.

2. Air Pollution: exhaust particulates, lead particles.

3. Radiation as a man-made hazard continues to be a strong research topic.

1971 -'72

1. Reduced concern with radiation.

2. Air and water pollution become the dominant theme:
   - Detergents
   - Pipeline and pollution of the tundra
   - Dumping at sea
   - Metal contamination: lead, cadmium, asbestos
   - Mercury in fish and water - hazard (some discussion on consumption and hazard tolerance)
   - Environmental conferences (Stockholm)

3. Insecticides and the human body

4. Ecology theme:

   A. Population Ecology - Erlich
   B. Limits to Growth
   C. Mans Impact on Global Environment

A return to 1945 concern? Atomic bomb threat substituted by worldwide environmental threat in the 1970's.

5. Small concern with urban stress: noise, traffic.

The Worcester Three-Decker: Form and Variation

by Peter Barnett

In the Monadnock of June, 1970, an article by Arthur J. Krim appeared which represented a valuable study of the three-decker building type as an historical phenomenon.[1] The major purpose of the study was to lay the foundations for an understanding of the type through the development of a system of classification of its significant variants, by physical characteristics, chronology, and geographical distribution. The article gave a very useful first look at a local building type which has never received the critical attention it deserves, and offers a challenge to continue the study into other aspects of the three-decker phenomenon. In the present paper I would like to suggest briefly another approach, one which deals with the formal characteristics of the three-decker apart from their chronological development, or stylistic antecedents. It involves the way the three-decker is perceived as form, the influence of this upon our perception of its environment, and how these perceptions can be altered by variations in the handling of architectural elements.[2]

As Arthur Krim suggested, the three-decker emerged at a particular time to fill a particular need, a need for what could be called a semi-urban structure. It was clearly an urban form in one sense: it was a product of the growing industrialization of New England communities at the end of the nineteenth century, and of the pressures of increased density and limited budget which resulted. However, in addition to these growing urban pressures the three-decker also reflected a second kind of pressure: the pre-existing ideal of the free-standing, single-family dwelling. I don't wish to maintain that the designers of the three-decker consciously imitated a given architectural model. Nevertheless, whether through design choice or lingering habit a continuity is maintained with an essentially non-urban dwelling type, particularly evident in the more elaborate examples. Thus, the three-decker can be seen as a logical and highly successful compromise between the two determinants, one urban and practical, the other non-urban and aesthetic. The implications of the compromise are likewise both practical and aesthetic, and its success is as much visual as functional.

In order to apply this approach to specific exam-

ples we need first to develop a framework of definitions, based on gestalt perceptual theory.[3] For our purposes it will be enough to present a single gestalt principle, the figure/ground principle, and to define the concepts inherent in it. Briefly, the human mind tends to organize a visual field by isolating certain portions as figure and their surroundings as ground. These perceptions are relative; where an area dominates--reads as figure--its surroundings necessarily recede as ground. We read as figure those areas which are positive, which are more coherent and clearly grasped, while negative areas, with relatively indeterminate character, are read as ground. Furthermore, figure/ground relationships are translated into a spacial configuration, with positive areas interpreted as objects and negative areas as surrounding space.

When the visual field being perceived is two-dimensional, and particularly if it has no recognizable symbols of solid objects in it, the figure/ground principle is of immense importance in determining our interpretation of spacial relationships. If the field is the three-dimensional world, the world of real objects in space, it is much less important a tool than binocular vision or previous experience. Still, though in these circumstances it cannot control our perception of form in space, it can modify that perception by enhancing or diminishing the extent to which we feel a form as positive with respect to its surroundings.

Turning to architectural forms specifically, the reality of a building as a finite physical entity in a continuous void ensures that we will tend to see it primarily as a positive form in a negative space. In other words, we will be aware primarily of the form, and if we are aware of the space at all we will see it as leftover. The opposite perception--the primary awareness of the space as an entity--requires the opposite conditions: a finite void in a continuous mass, as in a cave dwelling. Although this extreme is rare (except in our perception of interior spaces, which is another matter) there are nuances between these two poles which are much more common, and which can be attributed to characteristics of a given building form in relation to its environment. A building

which is autonomous in character--that is, one which seems to take its shape according to its own demands, or internal logic, unrestricted by outside pressures--will tend to read much more positively than one which is dependent--one which takes a form dictated by the pressures of neighboring structures or spaces. Since figure-ground perception is relative, the character of the space will have a corresponding influence: a building which is isolated in an extensive, undefined space will read more positively than one in a crowded urban situation where the spaces tend to be more finite and clearly defined, which is to say more positive.

If we apply these ideas to the three-decker and to the two determinants which produced it, we can begin to understand the nature of the compromise which it represents. The tradition of the free-standing, single-family dwelling, which involves ideally the placement of a single unit in an open landscape, tends toward positive, autonomous forms set into a diffuse, negative space. The pressure of urban density, on the other hand, tends toward an environment of forms restricted by their neighbors, and relatively clear, positive spaces. The combination of the two determinants creates a situation where positive and negative characteristics are both present, and achieve a kind of balance. In this situation, relatively minor variations in the handling of form can alter our perception from one primarily of autonomous form in space to one primarily of dependent form defined by its surroundings. In this way, the three-decker can not only reflect its semi-urban environment, but can significantly influence our perception of it.

If we look at a few examples from the immediate neighborhood of Clark University we can confirm the effect of relatively small variations of treatment on our perception of the buildings and their environment. The first comparison is between two buildings about a block apart, of the same size and dimensions, and employing the same architectural elements. The first, on Kilby Street, (figure 1) is felt predominantly as autonomous form, while the second, on Gardner Street, (figure 2) is perceived much more as limited by its surrounding spaces. The difference in reading is the result of a few significant changes in the handling of

Figure 1

Fig. 2

detail. In the Kilby Street example, the bay projects beyond the main mass of the building, and is roofed separately; in the Gardner Street example the bay is contained within the main mass, and its forward wall helps to define the frontal plane of that mass. The cornice in the first changes direction to define the bay as a separate element; in the second it defines instead the integrity of the basic block, and subordinating the bay to it. The treatment of the porches continues this distinction: in the first the porch is a filligree of slender posts which gives us no sense of being within the enclosing envelope of the mass, or of forming a boundary for the outside space; in the second the porch joins with the bay in defining the outer envelope of the main mass, and in defining clearly the space of the street.

The fact that we can see a peaked roof in the Kilby Street example also tends to increase its autonomy. Besides the association which the peaked roof has with the single-family house, it also tends to isolate each structure from its neighbors, suggesting a greater independence of one from the next than with flat-roofed structures, particularly of the same height. The continuity of a building with its neighbors, or lack of it, in turn affects our sense of the adjacent space as a positive shape. This is illustrated in the next example (figure 3), a street of three-deckers which go considerably further than the Gardner Street house in the direction of dependent form. The bay form, which in itself conveys a sense of autonomy in the way it swells out in the surrounding space, has been eliminated completely. In addition, the facing of the porch has been carried across to become one with the rest of the facade, strengthening our sense of the frontal plane, and the space it defines. And not least important, the roofs, seen from below, form a single line, with one exception, which links all the buildings together. What is interesting is how markedly the single exception stands out from the rest; while the continuity of the street is still very strong, the peaked roof is an interruption which reminds us of the separateness of the individual units. We can compare this street with a series of peaked-roof houses on Beacon Street (figure 4) where, despite the close spacing and the alignment of the facades, our sense of the isolation of separate

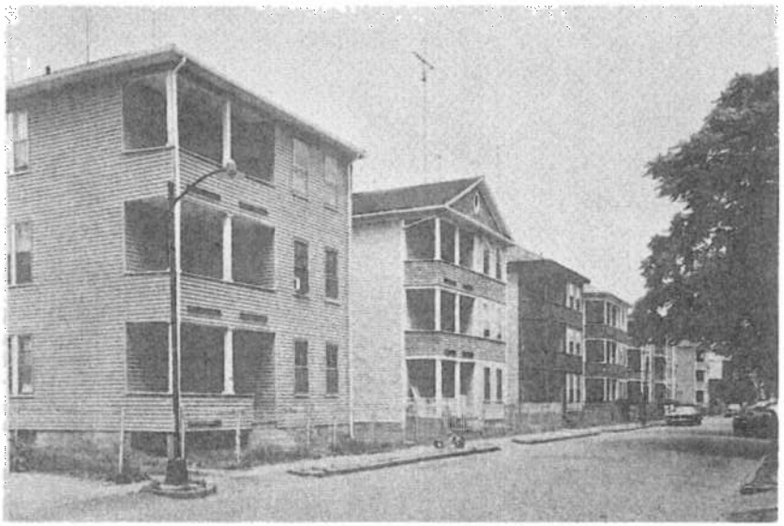


Fig. 3

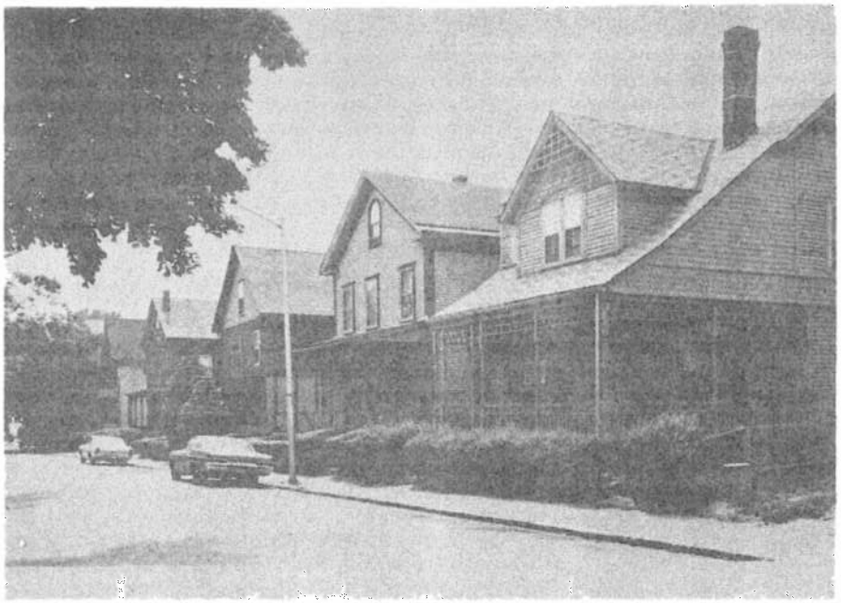


Fig. 4

elements overpowers our sense of continuity.

The three-decker form can also go farther in the direction of autonomous form, as we see in an example from Crystal Street (figure 5). As is true of almost all three-deckers, the basic block is actually very contained, and if it were unadorned it would appear strongly defined by its surrounding spaces. However, both the porch and tower element detach themselves from the main mass and project clearly into the surrounding space. The tower form is even more of a positive swelling form than the bay, and is given a completely independent turret roof. When taken together with the porch, it destroys any sense we might have of the shape of the street space. In the context of these autonomous elements, the rigid confinement of the side facade seems out of place.

Is one of these two perceptual directions better or more appropriate than the other? Clearly this depends on the character of the surrounding environment, the essential nature of the building, and on the feeling which the designer wishes to promote. On Crystal Street, facing the park, the choice of a relatively autonomous form seems appropriate, since it exists in the context of an ample, relatively unrestricted space. On Main Street, one would look for a different treatment.

Perhaps one of the most elegant solutions to the handling of form in the three-decker is to be found on Main Street, right on the doorstep of Clark University: the home of Bove's Luncheonette (figure 6). This is a double block, a type which immediately has a sense of internal completeness because of its symmetry. Unlike most double blocks with commercial space on the ground floor, there are only two rather than three floors of living space above. This increases the horizontality of the mass, and thus reinforces its close relationship to the street. Situated right on the sidewalk on both fronts, the handling of detail enhances beautifully its simple contained character and successful definition of space. The porches are ingeniously contained within the mass of the building, as are the bays. The cornice adds its clear definition to the block, and the horizontal frieze just below it reinforces the containment while adding a sensitive rhythm

Fig. 5

Fig. 6

and a further sense of horizontality.

The designer of the Bove block arrived at a solution which was successful both visually and functionally in meeting the demands which were responsible for it. Along with others he helped to create a building type for an environment which was partly urban, partly spacious. A range of formal treatment emerged which, probably unintentionally, enhances our awareness of the three-decker both as an independent element in space, and as a dependent definer of space. This confirms again that where an architectural form is successful, it will be found not only to meet the practical requirements placed upon it, but also to have found an appropriate visual expression for them.

FOOTNOTES

1. Arthur J. Krim, "The Three-Decker as Urban Architecture in New England," Monadnock, Vol. XLIV, June 1970, 45-55.

2. A fuller development of the ideas being presented in this paper is being prepared for publication in another journal. [Editors' note: Dr. Barnett does not presently know in which journal this longer article will be published. Interested readers may contact the Monadnock editors, who will forward the reference when the paper appears].

3. The major source for the gestalt theory of perception is K. Koffka, Principles of Gestalt Psychology (New York, Harcourt, Brace & World, 1935). For the extentions of the theory to the visual and constructive arts, see R. Arnheim, Art and Visual Perception (Berkeley, University of California Press, 1954).

Development of Alluvial Fans at Sturbridge, Mass. and Fall Creek, N.Y.

by William Renwick

Introduction

In arid regions, alluvial fans are a common and important feature of the landscape. In humid regions, however, they normally are found as relics of previous climates, as a result of man's disturbance of the surface, or as small and temporary features. Considerable work has been done on alluvial fans of arid and semiarid regions, but little is known of the peculiarities of fans in humid areas. This paper will deal with two types of humid region fans: ones caused by man's disturbance of the land, and ones actively forming under natural conditions.

Modes of deposition on alluvial fans

Several types of depositional processes on alluvial fans have been recognized and described by previous authors, including debris flows, stream deposition and sieve deposition.[1] A debris flow consists of a viscous mixture of material of varying sizes, possibly including vegetable matter as well as detritus, and water. These flows occur as low frequency phenomena, and usually result in large amounts of material being deposited in a single event.

Stream flows have a dual action on alluvial fans, both depositing material and reworking material already deposited by streams and other types of flows. In this manner, alluvial fans which are primarily deposited by debris flows or sieving can exhibit largely the surface features of stream deposition. Blissenbach[2] estimated that on some semiarid region fans moderate streamflows accounted for 90 to 95 percent of fan deposits, whereas Hooke[3] feels this estimate is too high.

Description of Sturbridge fans

Near Sturbridge Massachusetts there is a gravel pit, or more nearly a sand pit, which is being used as a source of material for construction purposes. Along the edges of this pit there are numerous alluvial fans in various stages of development. In the fall of 1971, the area was graded to its present form and a paved road was completed adjacent to the pit. According to an employee of Sturbridge Village, which owns the property, there was no notable change in the area until sometime in July of 1972, when after a period of little rain there was a particularly intense storm, during which channelization took place and at least one fan was formed. Since that time, subsequent storms have deposited material on the fans and created at least one new fan. The time of origin of some fans is uncertain, but it is assumed to be either during the July storm or since that time. Three of the fans are described below.

Fan 1 is the largest of all the fans, roughly 12 meters from apex to toe. The head of the channel which debouches onto the fan is only about 15 meters from the paved road, and receives considerable runoff from that road. Headward erosion is present. In the channel, about 1 meter below and parallel to the top surface, there is exposed a layer of clay about 20 cm. thick. Above that layer the material is essentially the same as the material on the slope below, a fairly homogeneous mixture of particles from fine sands to gravel, with a median in the range of medium sand. The surface of the fan is made up of coarse sands and gravels, showing the deflation of finer material from the surface. The toe of the fan lies on a playa-like surface of caked mud.

Fan 2 is not as large as fan 1, being only about 7 meters from apex to toe. The surface above it is an unpaved road, used periodically by trucks and other vehicles operating in the area. There is, then, a rather compacted surface, though not impermeable as the paved road. The slope on which the fan lies is steeper than that of fan 1, for as the former was graded to a constant angle, the latter owes its slope to the deposition of a considerable amount of fine

sands by wind. The slope is the maximum allowed by material this size, about 35%. The fan itself has a very lobate form, with a rather steep channel and steeper sides, up to 40% in some places. Like fan 1, there is considerable headward erosion in the channel. The toe of the fan rests on an uneven surface of well-mixed material from fine sand to gravel, like the slopes near fan 1.

Fan 3 is the smallest of the three, about 5 meters from apex to toe. The surface above it is essentially the same as that above fan 2, a compacted dirt road, though it is not as high above the bottom of the slope as in that fan. The slope against which fan 3 rests is made up of finer material than on the other slopes. There are a few tufts of grass on this slope, while the others are unvegetated, and the slope is much more irregular. The fan itself has a rather low slope, like that of fan 1, and at one area along the toe of the fan there is a deltaic face indicating that standing water was present during at least part of the depositional process.

Fan development at Sturbridge

An early hypothesis was that all of the fans had begun as debris or mud flows, and were subsequently modified by running water. Fan 2 was thought to represent an early stage while fan 1 showed a more mature form. This hypothesis was strengthened by the lobate shape of fan 2, which apparently indicated a mudflow construction. However, when fan 2 was examined in detail, a bedding of material within the fan was discovered. Two types of beds were evident. The first was a layer of coarse sands and gravels about 2 cm. thick, and about 15 to 20 cm. below the surface, and appeared to be an older fan surface which had been modified by wind erosion, after which additional material was deposited over it. The second type of bedding was not apparent when the fan was first broken open, but as the material dried out and was exposed to wind the vertical face was eroded. Layers of fine sands and silts amid the medium and coarse sand were then exposed as ridges on the face. These layers occurred in the top 30 cm. of the fan. Below that

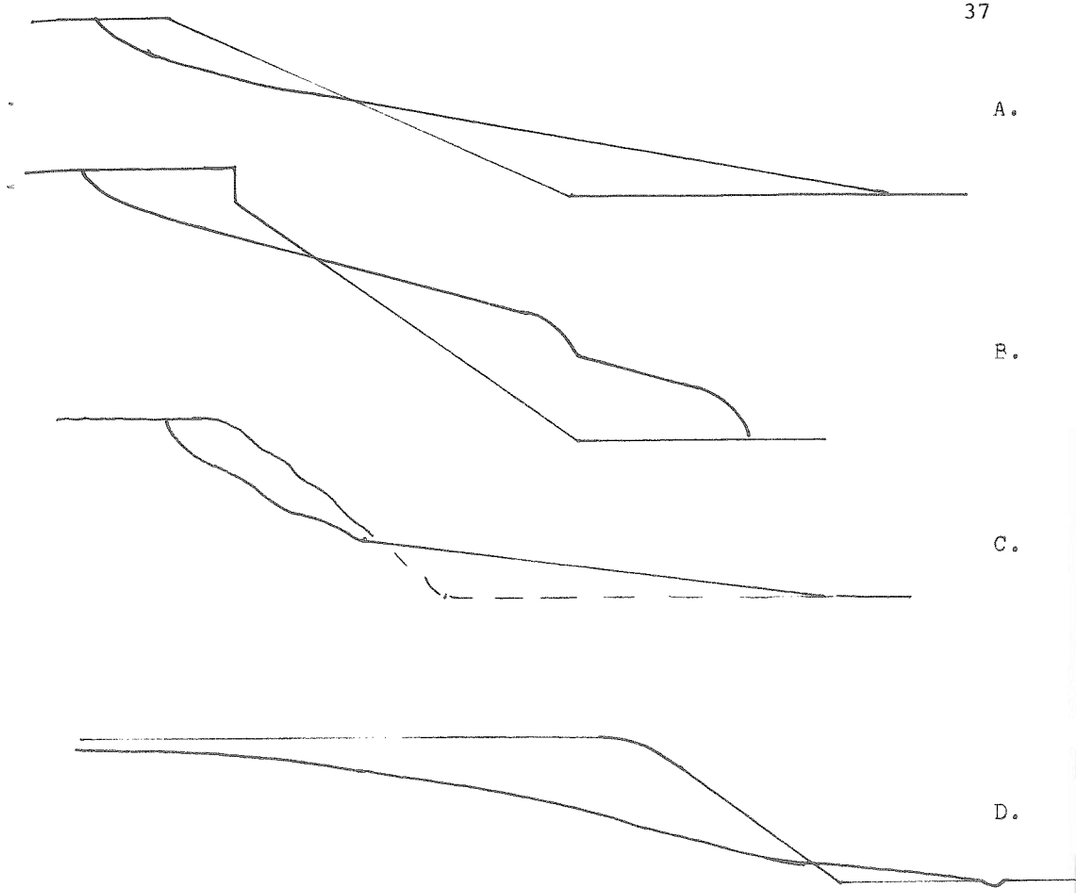


Figure 3. Long-profile sketches of fans at Sturbridge and Fall Creek, not to scale. A) Fan 1. B) Fan 2. C) Fan 3. D) Fan at Fall Creek.

they were not visible because caving in of the unconsolidated material and wind deposition had covered the face. The layers of fine material were spaced from 1 to 5 cm. apart and were 1/2 to 1 cm. thick. Because mudflows or debris flows are able to selectively deposit only the largest particles, even then not being found in beds, it was concluded that this deposition must have taken place under the influence of running water.

How then, could the fan take on such a distinctively lobate form? Hooke[4] has observed and described a process by which this might occur, which he calls sieve deposition. It results when the infiltration rate in the area of the fan over which water is flowing is greater than the discharge of water onto the fan. Thus the flow of water infiltrates completely before reaching the toe of the fan. Initial deposition takes place at that point where the water infiltrates completely, after which backfilling proceeds up the fan. When the channel has been filled with material deposited behind the original particles, the flow once again proceeds to the point of original deposition and a new sequence starts. This process takes place quite rapidly, and thus lobes are built up. This has been observed both on laboratory fans and in the field. Radial position of the sieve lobe (distance from the apex) is determined by the infiltration rate and the discharge. The greater the discharge or less the infiltration rate, the further downfan the lobe will be deposited. A flow of fairly constant discharge lasting over a period of time could then result in a lobe of considerable size. The deposition is further enhanced by the higher infiltration of a steep-sided lobate form. Thus it appears that fan 2 owes its lobate form and bedding to this type of deposition, rather than to a mud or debris flow.

Fan slope-discharge-grain size relationships

Both Hooke[5] and Bull[6] have shown that in laboratory and in natural fans, slope is inversely related to discharge. Higher discharges have greater velocities and higher bed shear stresses and thus transport

on a lower slope the same material carried only on a greater slope by lower discharges. By the same process, slope is directly related to grain size of material transported. A constant discharge will carry coarser material only on a steeper slope, and finer material downslope, and thus slope is decreased. In addition, sediment concentration in the flow is directly related to slope, as an increased concentration of material will result in more deposition higher on the fan, and thus a steeper slope.

Whereas it was hypothesized that all of the fans at Sturbridge were primarily debris flows, some of which were later modified by water, another explanation seems now more appropriate for the variation in the characteristics of the fans.

Fan 1, a large, low-slope fan, owes its general characterisitcs to a very high discharge through its channel. This fan has the largest drainage area, and low permeability throughout much of that area, due to the paved road and the layer of clay beneath the surface. Thus, though there seems to be a large amount of infiltration on the fan, it still takes on the characteristics of a water-deposited feature.

Fan 2, a large, steep, lobate fan has a much smaller drainage area than that of fan 1, thus a much lower discharge through its channel. The coarse material of which it was made resulted in a high rate of infiltration, and this combined with a lower discharge caused sieve deposition and its characteristic lobate forms.

Fan 3, a small, low-slope fan that developed in a more recent storm than the others, owes its shape to a small grain size predominating. A sieve analysis of material from this fan showed a smaller median grain size than in the other fans, and a larger percentage of silts and clays. The existence of vegetation on the slope shows that the material must be more hospitable for plants than are the sands, and that it also has a lower infiltration rate. Thus this fan is less affected by infiltration, and is clearly a water-deposited feature.

Description of fans at Fall Creek

Fall Creek, a stream with a drainage basin of about 260 sq. km., flows to the west towards Ithaca, New York. As it nears the steep slope of the Cayuga Lake valley, it cuts sharply into bedrock and glacial deposits. The resulting gorge is postglacial, and is cut within a glacially scoured valley. About 7 km. east of Cayuga Lake the stream cuts through a terminal moraine[7] in the valley. Here the gorge is about 250 m. wide; the stream flows from side to side within the gorge, cutting into the walls of the gorge where it impinges against them. Where it does not, there is a floodplain 1-2 m. above the low stage water level. First, second, and third order tributary streams cut into the gorge wall in this area, and where those streams flow onto the floodplain rather than directly into Fall Creek, alluvial fans are formed. An area of the gorge wall between two such points of impingement on the north side of the stream was surveyed, and in that area 5 tributary streams flow down the slope. The slope through which the streams cut is composed of boulder clay, a mass of rock flour studded with boulders, and has a rather steep slope of about 35°. In some areas the slope is as much as 45°. Several types of mass wasting are active on the slope, including creep, landslides, and slump. At one point a shallow channel similar to chutes described by Hack and Goodlett[8] scars the slope and a fan-like deposit of coarse material with a slope of about 22° lies at the bottom, partly covering the base of a tree. One of the fans in this area was studied in detail, and is described below.

The area above the gorge, where the tributary streams rise, is relatively flat farmland, in active use. The stream which flows onto this fan is an intermittent one, and has a drainage area of about 1/10 sq. km., most of which is farmland. About 300 m. from the edge of the gorge the stream bottom lies approximately 1 m. below the surrounding land and is plowed and planted as the same. About 180 m. from the edge of the gorge, the gradient of the stream begins to increase, and the channel slopes are wooded. The gradient increases downslope, reaching a maximum of 16° near the bottom of its course. There is an

abrupt change in slope, from 14° to 7.5° at the fan-head, some 10 m. upstream from the bottom of the slope. The fan itself measures 44 m. from apex to toe, 65 m. from side to side, and is roughly semi-circular in shape. The average slope of the fan is 7°, and the apex is about 5 m. above the toe. There are several distributary channels on the fan, the number carrying water at any time varying with the discharge of the stream. Some channels have rock covered beds free of debris, others have rocky bottoms with forest litter in the channel, and at least one channel was a slight depression in which water had flowed over the leaves and other material covering the forest floor. The oldest trees on the fan are estimated to be 100 years old, and the vegetation on the fan is not substantially different from that of the surrounding forest.

Fan development at Fall Creek

Like the fans at Sturbridge, the fans at Fall Creek develop from the rapid erosion of relatively unconsolidated material on a steep slope. At Fall Creek, the slope down which the streams flow owes its steepness to undercutting by Fall Creek, and subsequent mass wasting. The abrupt change in slope at the edge of the floodplain results in rapid deposition, and thus a fan is formed. The material which is being deposited on the fan probably originates for the most part from erosion in the steeper parts of the gully, for the gradient of the stream above that is quite low and erosion is at a minimum. Possibly erosion on that upland has increased since the land was cleared and put into agricultural production, at the most 170 years ago, but this probably has not contributed much to fan development. Sieve analyses of material from the source areas showed no significant differences in the types of material present. As material is deposited and the fan grows in size, it impinges on the secondary channels of Fall Creek, which are used in times of flood. One such channel follows the base of the main slope, and curves out away from the slope at the toe of the fan.

It is difficult to determine the actual processes

under which this fan was formed, especially as it was only observed at time of moderate and low flow. On larger fans, debris lobes, levees, and other characteristic forms can be identified, but in this case vegetation and litter on the surface obscured such features. The oldest trees on the fan are near the toe, and there are few trees near the apex, indicating that more recent deposition or more violent flows occurred near the apex. On another fan in the same area, nearly all the large trees in the area of the apex were dead, and the higher branches had been blown down and were lying on the ground in a jumble near the apex. This could be explained by a debris flow which by burying the bases of the trees killed them all at the same time, causing a concentration of downed branches in one area.

Samples of material from the source area, the fan, and the floodplain were taken and a grain size analysis performed. Samples were taken at the surface and at a depth of 30-40 cm. In some locations just surface samples were taken; at others both surface and depth samples were taken. Three different types of grain size distributions were found. Type A samples all had greater than 45% silt and clay, and 15% or less of the material was greater than 4 mm. in size. Type B samples all had less than 40% silt and clay and greater than 20% larger than 4 mm. Type C samples were all greater than 65% silt and clay, and 98% of them were smaller than coarse sand, with no material greater than 4 mm.

Type A samples are found in the field above the gorge, in the valley of the tributary stream, and on the fan, in all cases only at the surface. Type B samples are found near the stream in the field above the gorge, on the surface of the floodplain, and on the fan surface and at depth. Type B occurs only at depth, except in association with stream channels, either in the field above, in distributary channels on the fan, or in those channels on the floodplain. Type C samples are found only on the floodplain, both at the surface and at depth, underneath B.

This distribution could result from a number of processes, including changes in the velocity of flow

during deposition, removal of clays by subsurface flow as at low flow the water in the stream infiltrates completely upstream of midfan, changes in material eroded from the source area, and sampling error. One hypothesis, however, seems particularly appropriate in explaining the distribution of material.

Jahns[9] has described debris fans in the Connecticut Valley, Massachusetts, which are considerably larger than these and yet are formed from debris flows, largely in a period of only three years. Once established, the fans do not seem to be eroded rapidly. These fans, like those at Fall Creek, are formed through the erosion of glacial till. The fans at Fall Creek, then, could be debris flows which have been subsequently modified by stream flow. Either a change in the velocity of flow during deposition, or later deposition of clays at the surface through entrainment in the forest litter during sheetwashes could cause finer material to be deposited on top of a coarser layer. High frequency flows then remove the layer of fine material from the surface in and near distributary channels. The coarser material below thus could also be an older erosional surface. It appears that Type C deposits in the floodplain result from some other type of process associated with Fall Creek.

The fans exist in a temporary state, as they can form only when the main channel of Fall Creek has migrated away from the base of the slope, and are quickly eroded as soon as the channel migrates back and begins to undercut the fan. One of the fans at Fall Creek is in this state, about half having been removed at the present time, similar to those described by Denny[10] in Pennsylvania.

Conclusions

The fans at Sturbridge are not natural fans; they were formed in a man-made environment. They are most like arid region fans in that they support no vegetation. The permeability of the material means that only low-frequency storms can cause the material to become so saturated that surface flow occurs. Thus

the fans are deposited in events, rather than under a continuous flow. They are more like laboratory fans than like natural ones, but because they are larger than most laboratory fans they approach the scale of natural fans and probably more nearly simulate their development. At Fall Creek, the fans are a naturally occurring, but temporary and small feature of the landscape, and exist in association with landforms that are relics of past climatic conditions. They exhibit most of the features of arid region fans, with the exception of some surface effects of stream action. There is some evidence that they were formed by debris flows, but due to their small size and the presence of vegetation on the fans, it is difficult to establish the actual modes of deposition.

FOOTNOTES

1. Hooke, R. LeB., "Processes on arid region alluvial fans," J. of Geology, v. 75, 1967, pp. 438-460.

2. Blissenbach, E., "Geology of alluvial fans in semiarid regions," Bulletin of the Geological Society of America, v. 65, 1954, pp. 175-190.

3. Hooke, Processes on arid region alluvial fans.

4. Ibid.

5. Hooke, R. LeB., Steady state Relationships on arid region alluvial fans in closed basins, American Journal of Science, v. 266, 1968, pp. 609-629.

6. Bull, W. B., "Geomorphology of segmented alluvial fans in western Fresno Co.," California, U. S. G. S. Prof. Paper no. 352E, 1964.

7. Von Engeln, O. D., The Finger Lakes Region: its Origin and Nature, Ithaca, Cornell Univ. Press, 1961.

8. Hack, J. T. and Goodlett, J. C., "Geomorphology and forest ecology of a mountain region in the central Appalachians," U. S. G. S. Prof. Paper no. 347, 1960.

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Towards an Understanding of Geographical Stereotypes

by Donald Bliwise

Introduction

Bowden (1970) has suggested that myths play a major role in determining how people deal with various aspects of the environment. For example, the American West has been subject to a number of different myths. Immediately following the purchase of the Louisiana Territory, the West was seen as a land of fertile soils and optimum growing conditions. Soon after this the West became known as a vast desert, incapable of supporting any type of farming. In these cases, stereotypes grew from the people's unfamilarity with the area in question.

While such a qualitative description of environmental perception is most intriguing, there appears to be little quantitative work performed in attempting to study the application of stereotypes to different land regions. Although there has been some research involving cognitive mapping (Gould, 1973) and the perceived similarities and differences of various states (Cox and Zannaras, 1973), most of this work has come from a geographical perspective. Social psychology has dealt with the issue of stereotyping in terms of national or ethnic stereotypes of people (Lambert and Klineberg, 1959; Diab, 1963; Sisley, 1970). Indeed stereotyping has often been defined by social psychologists as a "simplified and standard image (often highly evaluative, inaccurate, and rigidified) of a group of people" (Wrightsman, 1972, p.610). In short there appears to be no work which studies notion of the stereotyping of physical characteristics of land while invoking the social psychologist's view of stereotyping.

The present study seeks to undertake such an approach to the problem of geographical stereotypes by relating the influence of three independent vari-

ables to stereotyping: the area under consideration, the effect of knowledge of different land regions as determined by exposure to a geography course at Clark University (arbitrarily defined as geographical "sophistication"), and the sex of the subject. It is hypothesized that subjects will use more stereotypes in characterizing an area less familiar to them since the use of stereotypes is thought to reflect a lack of real knowledge about that area. It is also proposed that subjects with previous exposure to academic geography will be less inclined to use geographical stereotypes than naive subjects, for presumably the academic experience has led such subjects to shed preconceptions of the nature of different land regions. No sex differences are expected.

Method

Subjects

Fifty-two Ss ranging in age from 17 to 52 were used in this study. Four Ss were over the age of 30; the remaining 48 Ss represented a college-age sample. Ss answering affirmatively to the question "are you taking or have you ever taken a geography course at Clark University" were assigned to the geographically sophisticated group. Twenty-six Ss were in the geographically sophisticated group and 26 Ss were in the geographically naive group.

Procedure

All Ss were asked to fill out a three-page questionnaire. Page one collected information on age, sex, home state, and geographical sophistication. Directions for the remainder of the questionnaire were also given on page one.

Page two and three of the questionnaire were identical except for the heading, which was either "The East" or "The Midwest." (These were chosen on the assumption that most Ss would be relatively familiar with the East and relatively unfamiliar with the Midwest). The ambiguity inherent within the geo-

graphic delineation of each term was assumed to promote use of stereotypes. Questions from Ss regarding the specific nature of the indicated area were not answered.

Each page consisted of a list of 25 pairs of words (basically antonyms), most of which could be used to describe land or geographical features (e.g., wet-dry, hot-cold, lush-desolate). Each pair was separated by 5 lines numbered 1 to 5. If S felt that either word (but not both) strongly characterized the region suggested by the heading at the top of the page, he or she was asked to place a check above lines 1 or 5, respectively. If S felt that either of the words (but not both) somewhat characterized the region, he or she was instructed to place a check above lines 2 or 4, respectively. If S believed that neither word characterized the region, he or she was instructed to place a check above line 3.

In order to control for possible effects of testing order, the sequence of the two sheets was reversed in every other questionnaire. Since the questionnaires were randomly distributed, this was considered sufficient to control for sequence effects.

Questionnaires were scored in two ways. A stereotype score was obtained by counting the number of checks in columns 1 and 5 and arbitrarily multiplying this total by 2; this was added to the number of checks in columns 2 and 4 (arbitrarily multiplied by 1). The stereotype score thus assumes that a S's use of stereotypes can be quantitatively measured on the basis of his or her reliance upon words that strongly characterize or somewhat characterize a particular region, with the former given additional "weight." Because of the fact that stereotyping may possibly be tapped only by examining words which Ss feel strongly characterize a region, a separate measure, number of high-stereotype responses, as indicated by the total number of checks in columns 1 and 5, was also recorded for each region considered for each S.

Results

Results of an analysis of variance of geographical sophistication and geographical familarity (area considered) as a function of stereotype score are shown in Figure 1. Mean values are shown in Figure 2. Two factors were significant at the .05 level, area considered and area considered by geographical sophistication. Ss tended to display higher stereotype scores when characterizing the East as compared to characterizing the Midwest (22.37 to 20.98). With regards to the interaction of geographical sophistication and area considered, it is interesting to note that Ss low in geographical sophistication (out-of-class) scored significantly higher than Ss high in geographical sophistication (in-class) only in describing the East. In describing the Midwest, both groups were similar. Within the geographically sophisticated group there is a very small difference in the quantitative characterization of the East and the Midwest.

Results of an analysis of variance for geographical sophistication and area considered as a function of the number of high-stereotype responses are shown in Figure 3. Mean values are shown in Figure 4. Again area considered ($p<.01$) and area considered by geographical sophistication ($p<.05$) contribute significantly to the variance. In characterizing the East, all Ss use an average of 4.87 responses of the form "X could be used to strongly characterize the region discussed," while in characterizing the Midwest, an average of only 3.77 such responses were used. For the interaction of geographical sophistication by area considered, the Ss low in geographical sophistication (out-of-class) used an average of 5.77 high-stereotype responses in describing the East when compared to 3.77 such responses when describing the Midwest. For the in-class group this difference was much less dramatic (3.96 in characterizing the East, 3.71 for the Midwest).

Because of the fact that the number of male and female Ss was not equal, the factor of sex could not be introduced into the preceding analysis without upsetting proportionality. Instead of dismissing the possibility of sex differences altogether, a number

Table 1

Analysis of Variance of Geographical Sophistication and Area Considered as a Function of Stereotype Score

SOURCES OF VARIANCE	df	MS	F	p
Total variance	103			
Between Individuals	51			
Geographical Sophistication	1	30.154	.34	NS
Pooled I's	50	88.595		
Within Individuals	52			
Area Considered	1	49.847	5.81	p<.05
Area Considered by Geographical Sophistication	1	58.499	6.82	p<.05
Pooled I's by conditions	50	8.573		

Table 2

Mean Values for Geographical Sophistication and Area Considered as a Function of Stereotype Score

Geographical Sophistication	
In-class (n=52)	21.14
Out-of-class (n=52)	22.21
Area Considered	
East (n=52)	22.37
Midwest (n=52)	20.98
Area Considered by Geographical Sophisitcation	
East, In-class (n=26)	21.08
East, Out-of-class (n=26)	23.65
Midwest, In-class (n=26)	21.19
Midwest, Out-of-class (n=26)	20.77

Table 3

Analysis of Variance of Geographical Sophistication and Area Considered as a Function of Number High-Stereotype Responses

SOURCE OF VARIANCE	df	MS	F	p
Total variance	103			
Between Individuals	51			
Geographical Sophistication	1	21.239	1.00	NS
Pooled I's	50	21.275		
Within Individuals	52			
Area Considered	1	31.238	9.24	p<.01
Area Considered by Geographical Sophistication	1	21.242	6.28	p<.05
Pooled I's by conditions	50	8.573		

Table 4

Mean Values for Geographical Sophistication and Area Considered as a Function of Number of High-Stereotype Responses

Geographical Sophistication	
In-class (n=52)	3.86
Out-of-class (n=52)	4.77
Area Considered	
East (n=52)	4.87
Midwest (n=52)	3.77
Area Considered by Geographical Sophistication	
East, In-class (n=26)	3.96
East, Out-of-class (n=26)	5.77
Midwest, In-class (n=26)	3.77
Midwest, Out-of-class (n=26)	3.77

of chi-square tests were performed on the data. For these tests, the number of high-stereotype responses was used as the dependent variable; this variable did reveal one factor at the .01 level of significance and in general seemed to account for a greater proportion of the variance than did stereotype score. The number of males and females having a greater number of high-stereotype responses when characterizing the East (when compared to the Midwest) and the number of males and females having less than or the same number of high-stereotype responses when characterizing the East (when compared to the Midwest) were determined for high, low, and high and low combined geographical sophistication. Results are shown in Figure 5(a,b,c); all chi square values were NS. A similar chi square analysis performed on all Ss over 30 years of age (Figure 5d) was also not significant, thus indicating that there was not a clear trend apparent in these older Ss.

Discussion

On the basis of mean values for area considered as a function of stereotype score and number of high-stereotype responses, it appears that Ss tend to use more stereotypes in characterizing the East than in characterizing the Midwest. Because 49 out of the 52 Ss spent most of their lives in states east of the Mississippi River (nearly all of these from the New England or Middle Atlantic States), it could be argued that Ss are applying more stereotypes to an area with which they are more familiar. This represents a paradox, for such a fact is opposed to the original hypothesis of this study, namely that because stereotyping represents a simplified image of a location or area, places outside the domain with which the person is most familiar should be more susceptible to stereotyping. It is possible, however, to argue that Ss may use more stereotypes simply because they do know more about a particular region. The fact that stereotypes are often an aid in establishing perceptions is a well-documented fact (Wrightsman, 1972). Perhaps then the suggested "stereotyping behavior" is measuring only familiarity, or the attempts of Ss to apply more adjectives to regions with which they are more

Table 5

Results of Chi Square Tests Employing Number of High-Stereotype Responses as Dependent Variable

			Males	Females
a)	IN-CLASS			
	x^2=.026	East>Midwest	6	5
		East≤Midwest	9	6
b)	OUT-OF-CLASS		Males	Females
	x^2=.49	East>Midwest	7	9
		East≤Midwest	3	7
c)	ALL SUBJECTS		Males	Females
	x^2=.00	East>Midwest	13	14
		East≤Midwest	12	13
d)	SUBJECTS OVER 30		Males	Females
	x^2=1.33	East>Midwest	1	1
		East≤Midwest	2	0

familiar.

This alternate hypothesis, although initially sounding quite accurate, is confounded by the results of the interaction between geographical sophistication and area considered. In the case of high-stereotype responses as dependent variable, the geographically sophisticated Ss showed a very slight difference with regards to characterizing the East and Midwest (3.96 and 3.77, respectively). With stereotype score as dependent variable, the difference is, in fact, reversed (21.08 East, 21.19 Miswest). It is only for the geographically naive (out-of-class) Ss that the tendency for the East to be more highly stereotyped is clear (5.77 to 3.77 for number of high-stereotype responses and 23.65 to 20.77 for stereotype socres). If the above-mentioned hypothesis that stereotyping is simply a direct indication of familiarity is implicated at this point, it seems that the out-of-class sample must then be considered more familiar with only the East than the in-class sample. Clearly there is no reason to posit such a characteristic in a randomly selected sample. Conceptually there is more reason to believe that out-of-class Ss are, in fact, using more stereotypes simply because they are more naive of the fallacious nature of stereotypes in describing land regions. Yet this may only be most apparent in characterizing a region which has already attained some degree of familiarity for S. There may thus be a type of familiarity threshold, above which an academic type of approach to geography is valuable in establishing less stereotypic percepts. Unless that basic underlying familiarity exists, however, an academic approach may have little effect in establishing a degree of geographical sophistication.

The present research is not without difficulties. The arbitrary assignment of Ss into groups of high and low geographical sophistication, for example, ignores other possible geographical experiences (e.g., travel, reading) which the out-of-class group may have had, as well as assuming that geographical sophistication is an inevitable outcome of having taken a geography course. Another problem arises from the fact that several of the descriptive

adjectives employed in the questionnaire could be construed as relating primarily to the people of the region and not simply the land itself. Since Ss may have more affective reactions to groups of people than to geographical characteristics, this represents a confounding factor in the analysis. Questionnaire research in general suffers from numerous difficulties; such factors as carelessness of response, social desirability, and extremity of response have all been demonstrated to exert an effect on questionnaire responses (Wrightsman, 1972). Finally the normative error variance (pooled I's) is extremely large in both analyses of variance, thus suggestive to unaccounted-for individual differences in answering the questionnaire.

Despite all of the above limitations, this research represents a reasonable attempt to deal with the problem of geographical stereotypes. Four of the interactions were significant at the .05 level and should therefore not be dismissed easily. Such a pilot study can hardly be said to demonstrate conclusively that people tend to use more stereotypes in describing an area with which they are more familiar (this being particularly true for geographically naive Ss); it does, however, suggest the possibility of such a relation. Further work, taking into account the difficulties with the present research, is needed.

FOOTNOTES

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by Esther Rolnitzky

With all the pressing and potentially destructive problems that America's faced with today, why talk about garbage? After all, unlike so many other 'crises' when garbage is out of sight and smell, it's completely out of mind. But it's getting more and more difficult to dispose of the problem easily. Up until about the 1700's, people would dispose of their trash by tossing their nasties out the nearest window. However, Americans now produce 3.5 billion tons of solid waste a year (Kelley, 1973, p.6), a virtual 'garbage explosion' and an awful lot of paraphenalia to be piling up under the window. If the only difficulty were in finding a place to stash all that stuff, things would be bad enough -- sanitary landfill space is becoming scarcer all the time. But the environmental problems of air, water, and ground pollution caused by the generation and disposal of wastes are as widespread as they are devastating. The philosophy behind the 'wasting of wastes' in this country is, for the most part, the same philosophy behind what Barry Commoner calls our "ecologically faulty, socially wasteful" system. And in the case of garbage, this tragic failure is compounded. The wastes that are now polluting our environment are actually a valuable natural energy resource which can easily and inexpensively be converted into a multi-purpose gas, similar to natural gas.

This gas is the infamous substance from which UF's are made, Marsh Gas, better known as methane. The conversion of organic wastes to methane is accomplished in a digester, or enclosed tank sealed off from the atmosphere, where anaerobic digestion takes place by two different types of bacteria. The first stage involves acid-producing bacteria which break down the organic material into simple sugars, alcohol, glycerol, and peptides. After these compounds have accumulated to a sufficient degree, the second group complete the conversion to methane. Conditions required for optimum gas production include a pH of 6.8-8.0, a carbon to nitrogen ratio of 30.1, and maintenance of temperature from 85-105°F. Suitable substances for digestion include sludge, kitchen wastes, yard and garden wastes, some agricultural and industrial wastes, etc. The slurry that remains after the fermentation process can be used as a fertilizer or soil conditioner. A typical cow dung slurry consists of 1.8-2.4% nitrogen, 1-1.2% phosphorus, .6-.8% potassium and 50-75% organic humus (Singh, 1973, pp.64-65). Methane can be substituted for natural gas in almost any use. Its primary purposes would probably be for cooking and heating fuel, but with filtration of the gas, it can run turbines to produce electricity and even run gasoline engines.

The quantity of available wastes suitable for methane production is staggering. The amount of dry, ash-free organic solid wastes produced in the U.S. in 1971 was 880 million tons (Hammond, et.al., 1973, p.75). The net methane potential of this material was calculated as approximately 6.2×10^{15} BTU (British Thermal Units). When it is considered that the country as a whole uses 65×10^{15} BTU per year (Cook, 1971, p.83) it is demonstrated that methane from wastes alone could potentially supply nearly 10% of the country's total energy requirements.

The feasibility of operating methane plants safely and efficiently is well established. Digesters are an integral part of many secondary sewage treatment plants throughout the U.S. where the methane produced is utilized to heat the plant buildings and maintain optimum digester temperatures. Rarely is any provision made to store the gas, the excess generally being burnt off or leaked to the atmosphere. In Clinton,

Mass. a small digester has been operating for 18 years. The population of the city is approximately 13,500. The sewage plant handles about 2 million gallons of wastewater per day with a sludge content of roughly 1.35 tons, and from these sludge solids alone, produces an average of 15,000 cu. ft. of gas per day (personal communication). This is enough gas to provide for the daily cooking-fuel requirements of 100 families (4-5 people per family) utilizing only 5-15% of all available organic wastes produced by the city. Were all homes to install garbage disposals, the available organic matter to this plant would increase significantly.

It is appropriate at this point to discuss the economics of the anaerobic digestion process. (Information for following obtained from University of California, 1969, pp.67-75). In order to do so, we must first make certain assumptions:

a) The digester gas can be sold at the rate of $.05/100 cu.ft. Being in the grip of the energy crunch, we all know that fuel prices are skyrocketing and may continue to do so in the future. Therefore, it is not unreasonable to assume that a market for methane exists and the price of $.05/100 cu.ft. is a reasonable rate. In a discussion with an official from the Commonwealth Gas Company, the author asscertained this fact. The only problem that exists is that natural gas is composed of about 96% methane while the gas produced in a digester is about 75% methane and 25% carbon dioxide. It is a simple and inexpensive process to purify the gas, and in order for the gas company to accept the methane it would have to undergo this filtration process. However, the methane can be used for most home purposes as is.

b) The refuse has been collected transported to the grinding station (cost of transport not included).

With respect to this assumption, it should be kept in mind that 90% of the costs in solid waste management are incurred in the pick-up and transport of wastes and "these costs would be incurred regardless of the method of treatment or disposal to be given the refuse" (University of California, 1969, p.73).

c) No increase in primary treatment capacity would be required.

It is possible to treat refuse of a solids content of about 10%, whereas sewage sludge is generally handled in the range of 4-6%. Therefore, plant capacity would require no change.

d) The production of refuse is 3lb./capita/day. (This includes organic garbage and a certain % of paper wastes). If only the garbage portion is considered (15% of total refuse) then the per capita production/ day is .45lb.

The cost estimates which were made by the University of California study included the cost of grinding the wastes prior to treatment, digester construction costs, chlorination, administration and pumping fees, operation costs, maintenance and repairs, materials and supplies, and miscellaneous costs. A construction life of 20 years and a capital interest of 4% are assumed. This is an unrealistically low rate, 8-10% being more suitable. Therefore, the costs quoted in the table should be adjusted accordingly. The following table summarizes these costs and demonstrates the effectiveness of economies of scale in reducing costs:

TABLE 18

COST PER TON OF REFUSE OR GARBAGE DIGESTED[a]

Items	City A 30,000 Population		City B 300,000 Population		City C 1,000,000 Population	
	Refuse	Garbage	Refuse	Garbage	Refuse	Garbage
Total Costs	4.00	7.24	2.32	4.10	1.42	2.37
Cash Value of[b] Digester Gas	1.78	5.93	1.78	5.93	1.78	5.93
Net Costs	2.22	1.31	0.54	-1.83	-0.36	-3.56

[a]Based on the value of the dollar in 1960.
[b]F.O.B. the treatment plant.

In comparison, sanitary landfilling runs about $2.00/ ton and a typical figure quoted for incineration is $6.00/ton. It can be seen that methane production is not only economically competitive but in large scale operations, may even prove to be profitable. Other costs include purification of the gas if necessary and the disposal of the sludge residue. However, as stated earlier, the sludge value as a soil conditioner should not be underrated and at the very least, the product could be given away to local gardeners, who might haul the sludge away at their own expense. Precedents determining the desirability of this product are numerous. Probably the best example is Milorganite, the trade name of a Wisconsin Co. which sells conditioned sewage sludge throughout the country. This, however, would increase the costs. The sludge would have to be stored and dried. This might seriously cut into profits. Unquantifiable costs include the dangers of handling methane, a potentially explosive gas. The engineering techniques of gas storage, transport and handling, however, are well-developed and with the proper precautions, such as used with natural gas, this danger is minimal.

On the benefit side, it has been shown that if in practice it is not a money-making proposition, it is in the least an economically feasible and competitive alternative. But the real benefits far surpass the monetary ones. It cannot be measured in economic terms alone how much the recycling of wastes in this manner could reduce pollution, help relieve the energy crises, provide substitutes for part of our irreplaceable store of fossil fuels, and help launch this country on the way toward 'energy self-sufficiency'. In a sense, it's almost like getting an awful big something for a next to nearly nothing. Perhaps at this point the reader is wondering why such a 'miracle cure' is not already a well-established practice in the U.S. Probably the best answer to this question is that there just wasn't any need for it. If we all think back just a short while ago, energy was just an input into our economic/technological system which was essentially taken for granted. Running out of fuel was not a possibility that was seriously reckoned with by all but a farsighted few. It is apparent that now, it just may be worth our while to consider the collection of 'mere trash' in a new light.

Methane generation is not the only recycling alternative for solid waste. A Swiss engineering company is now building a large waste plant which will convert 1800 tons of refuse/day into steam which will be sold to the General Electric works in Lynn, Mass. This plant alone will provide the equivalent of about 1750 barrels of low-sulphur fuel/day (New York Times, Feb. 24, 1974). A process which is still being tested called Biofractionation would convert paper wastes to protein and glucose the latter to be used as an edible carbohydrate source while the protein is envisioned as an animal feed or feed supplement. Wet oxidation is another process being tested, the objective in mind being organic chemical recovery. These are but a few of the new concepts being developed for solid waste, all with an eye towards recycling and refuse of this valuable resource.

The overproduction of disposables, throwaways, and the sheer volume of garbage produced every day in this country cannot be condoned. But as long as there is man, there will be garbage. I therefore propose the initiation of a new movement entitled 'Garbage Power' which will raise the collective consciousness of the masses to the fact that the wasted garbage they now scorn as trash, has great potential for reuse as raw materials as well as energy. 'Garbage in, Power out' may even be heralded as America's number one slogan of the day.

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Evaluation and Learning in Graduate School

by Marc Alan Eichen

Learning involves the proposal of ideas -- the exposition, and then the critical examination of those ideas -- the evaluation. I am not suggesting that these constitute the learning process. Rather, I am suggesting that learning does not happen without either of them. This is true whether learning involves one person or a group of people, say, a community of geographers. This is true whether one believes that science is revolutionary from time to time or ever cumulative. Evaluation and exposition do not occur sequentially but rather like voices in a fugue which overlap and complement one another.

My concern here is with evaluation; that is, the critical examination and analysis of experience, ideas, suggestions, notions, articles, books, lectures, presentations and so forth. Evaluation is such a pervasive activity that it comes under a number of headings: feedback, criticism, analysis, review, judgement, grade and so on. The discussion here does not center on an examination of the similarities and differences among these various forms. In fact these terms will be used synonymously. Instead, this paper identifies eight general rules which if implemented may be helpful in making us better evaluators.

First, one can say that evaluation works better when it describes rather than categorizes. The difference between categorical language and descriptive language is the difference between "This paper is neither well argued nor well organized" and "This is a 'D' paper." It is the difference between "Your work during the past semester was of 'C' quality as your test grades show" and "You are a 'C' student." With a more interpersonal example it is the difference between "Your behavior in the seminar got me angry" and "You're a stupid fool." The first case in all three examples is relatively descriptive in comparison with the second case. The second case places the

object or person in a category determined by some unspecified and ambiguous criteria. Avoiding categorical language reduces the nedd of the recipient to act defensively. Further, the use of descriptive language leaves the recipient relatively free to use or not to use the evaluation as he or she sees fit.

Criticism is more useful when it is specific rather than when it is general. Telling a student or colleague that a paper is "good," "poor," or vague" is probably less helpful than saying a particular passage is "good," "poor," or "vague" and what, in the critic's view, makes it so. Criticism is more helpful, also, when it indicates specific ways in which the work in question can be improved.

Evaluation should take into account the needs of both the reviewer and the recipient. Ego tripping on how many additional citations a reviewer may be aware of is all too often damaging and is certainly not helpful in changing the behavior of the recipient. Conversely, the failure of the recipient to act, or at least comment, on evaluation only encourages inadequate and unhelpful review.

Evaluation is most helpful when review is directed toward behavior about which the recipient can do something. Final grades are of no use in the context in which they are given. Their very name -- final grades -- suggests that one can no longer do anything to change them. An optimal time for review is often while there is considerable room to act upon and modify the review.

Evaluation is useful when it is requested rather than imposed. The asking for evaluation often means that the recipient is open to changing his or her behavior and is ready to act if the evaluation is given in a constructive fashion.

Criticism is most useful when it is given as soon as possible after a given exposition. Review is often conducted much past the time when it is most helpful for the recipient. From my observation this seems especially so as the formality of the presentation increases. That is, the time between presentation and review increases tremendously as we move from lectures

to journal articles to books and the usefulness of criticism decreases proportionately with that time span.

Review is helpful when it is checked with the recipient to ensure clear communication. Review situations are often sensitive, filled with personal involvement. If we work long and hard on our products it is naive to assume otherwise. One way to check that the review is received as it was meant is to ask the recipient to rephrase it in his or her own terms.

Evaluation, particularly when negative, is better given in some forms than others. A useful form is: (1) Begin with two positive statements. "On the whole I found your discussion of scientific explanation very useful. This is particularly so with the deductive argument which I felt I never understood until now." (2) Insert your criticism. "I wish you had tied the discussion of phenomenology to the portion of the paper on scientific explanation." (3) Add one more positive. "I noticed that the other portions of the paper were well tied together." (4) Finish with a ray of hope. "This is much better than the earlier drafts of the paper and with a little more effort the entire piece will be well tied together."

Evaluation functions in at least two ways. First, it is instrumental in the certification process whereby organizations (perhaps even societies at large) judge the competence of an individual in a particular role. Thus the rank in class of a particular law student is a primary indicator by which law firms judge the competence of that law student as a perspective member of the firm. Second, evaluation functions as a method of giving information about how one person's products and behavior effect others. It is a mechanism which tells one person how his or her products matches his/her intentions and what can be done if change is desired.

These two functions of evaluation are nowhere clearer than in graduate school and in the larger community of geographers. Evaluation serves to place us in different graduate schools and afterwards in different employment situations. It serves to distribute the awards of the society and the intellectual community. In these ways evaluation is part of the certification process. Then too, evaluation serves to encourage growth, awareness and increased opennews. It serves to broaden personal perspectives and support graceful ways of being in a turbulent world. In these ways evaluation is a mechanism which provides information on the match between products and behavior, and intentions. We must each balance the individual and organizational functions of evaluation to get a mix with which we feel comfortable.

Guidelines which serve the organizational functions of evaluation are often easily applicable, unambiguous and succinctly stated; hence, organizational functions of evaluation are those which are most often served. The guidelines presented here, however, are best applied in the service of the individual functions of evaluation. They are, in short, that (1) evaluation works better when it simply describes rather than categorizes; (2) criticism is more useful when it is specific rather than when it is general' (3) evaluation should take into account the needs of both the reviewer and the recipient; (4) it is most helpful when review is directed toward behavior about which the recipient can do something; (5) evaluation is more useful when it is requested rather than imposed; (6) criticism is most helpful when it is given as soon as possible after a given behavior; (7) review is helpful when it is checked with the recipient to ensure clear communication; (8) one useful of negative evaluation begins with two positive statements, inserts the criticism, adds another positive statement and closes with a ray of hope. By suggesting some guidelines which may help make us better evaluators in accord with the individual functions of evaluation, my hope is that personal growth is encouraged within both the Graduate School of Geography at Clark and larger community of geographers.

For much of what is here, thanks to The Crisis Center, Inc. of Worcester; Roger Kasperson; Don Koberg and Jim Bagnall, The Universal Traveler (Los Altos, California: William Kaufmann, 1973); Duane Knos; Bob Morrill; Carl Rogers, Client Centered Therapy (Boston: Houghton Mifflin, 1951); Irving Schwartz and David Seamon.

Alumni News

SHERMAN R. ABRAHMSON (MA 1948, PhD 1949), Department of Commerce, has recently completed a manuscript on the "Disruption of U.S. Markets by Imports from Socialist Countries."

BURTON W. ADKINSON (PhD 1942) has retired as Director of American Geographical Society in July, 1973. He is currently writing a book on "Science and Information."

LEWIS ALEXANDER (MA 1948, PhD 1949) is at the University of RI Kingston. He has recently been appointed to the Advisory Committee, Law of the Sea Task Force and to the International Marine Science Affairs Policy committee, National Academy of Sciences. He has conducted research on international straits, semi enclosed seas, and indices of national interests in the oceans.

AGNES ALLEN (MA 1934, PhD 1937) is retired from teaching at Northern Arizona University.

DAVID L. AMES (PhD 1969) is Associate Dean, School of Community Services, Virginia Commonwealth University.

JEREMY ANDERSON teaches at Eastern Washington State College. His research has concerned Mental Mapping and action space of children, remote sensing, and existential-phenomenological approaches to Human Geography.

WILLIAM R. ANDERSON (MA 1963).

ROBERT H. ARNOLD (MA 1964, PhD 1970) is Associate Professor of Geography at Briarcliff College, Briarcliff Manor, N.Y. is presently studying a variety of aspects of regional economic development of the New York Metropolitan Region.

SIMON BAKER (PhD 1965) is presently working on a low-cost simplified system of remote sensing for use by developing countries. He is also working on a history of U.S. Agricultural Classification. His article, "Zur Agrarishcen Landschaftsgeschichte Von Sudceylon," was published during 1972 in the Zeitschrift Fur Agrargeschichte

Und Agrarsoziologie. He presented a paper on the ancient irrigation system of Southern Sri Lankri to the Annual meeting of the Southwestern Conference of Asian Studies in October, 1973, at North Texas State University in Denton, Texas.

MILDRED BERMAN (MA 1950, PhD 1963) teaches geography at Salem State College (Mass.). She has undertaken research concerning geography and sex discrimination.

J. WILLIAM BIRCH

LLOYD D. BLACK (AM 1936, PhD 1940) is Professor of Geography, Northern Illinois University and has recently published The Strategy of Foreign Aid.

ROBERT E. BLACK (MA,) is working on his dissertation and is employed as Deputy Director of the Worcester Model Cities Program. He hopes to have the dissertation ready for faculty review before June, 1974.

ADELBERT K. BOTTS (MA 1931, PhD 1934) has retired from university teaching and is living in Battle Lake, Minn.

DAVID D. BRODEUR (MA 1960, PhD 1963), has recently been working on Regional Planning in Australia.

MEREDITH F. BURRILL (MA 1926, PhD 1930) retired in February of this year as Executive Secretary of the Board of Geographic Names, but he continues as Chairman of the United Nations Group of Experts on Geographical Names. He recently received the Distinguished Service Award for the Geographic Society of Chicago, the Meritorious Civilian Service Award from the Defense Mapping Agency, and was made an Honorary Fellow by the American Geographical Society.

EVERETT H. BUSH (MA 1947, 1951-52 at Clark) is Associate Professor of Geography at Wittenberg University, Springfield, Ohio.

HARRY H. CALDWELL (PhD 1951) University of Idaho is looking at the Population Dynamics of Idaho as

well as investigating the impact of governmental expenditures on a developmental project.

RUSSELL B. CAPELLE, JR. (MA 1971) received his PhD from the University of Pittsburgh in April, 1973. It was entitled, "Space Searching Behavior: Recreational Space from the Urban Resident's Point of View." Presently he is busy teaching eight different courses at the University of Rhode Island and working on a few articles based on his dissertation topic. Last summer he painted his house in Wyoming, Rhode Island ("Believe it or not"). His daughter, Kim, is now three and a half, and his wife, Pam, is working toward her BA in anthropology at U.R.I. His article, "Current Influences in Science Fiction," appeared in the winter issue of Phi Kappa Phi Journal.

NORMAN CARLS (MA 1934, PhD 1935) has been Professor Emeritus since retirement in June, 1973, from the Department of Geography at Shippensburg (Pa.) State College, and is also working part-time on the development of instructional materials in geography. This past year he received the Distinguished Service Award from the Pennsylvania Council for Geographic Education. He is now living in New Market, Virginia.

THOMAS W. CHAMBERLIN (MA 1937, PhD 1946) is Professor of Geography at the University of Minnesota in Duluth.

MARGARET S. CHEW (PhD 1960) is at the University of Wisconsin-La Cross and is working on the Geography of Wisconsin. She has also been involved with coordinating field trips for teachers overseas.

CHRIS CLAYTON (PhD 1973; in residence, 1968-71) is teaching at California State University in Northridge. He has a publication forthcoming in Geografiska Annaler on an entropy measure of areal differentiation. He writes: "Karen is in her second year of the MA program at UCLA in Architecture and Urban Design. Has not had a class with David Stea as yet."

CATHERINE E. COX (MA 1942) teaches at Fitchburg State College. Recent research involves a look at the "Hydro-electric development in Southwest, South Island, New Zealand."

CLARK N. CRAIN (PhD) has retired after 26 years Professor and Chairman, University of Denver, and is now Adjunct Professor of Geography and Regional Development, University of Denver. He writes that he is continuing consulting work in regional development in Libya, Virginia, and Wyoming. Research has involved "Methods in Regional Analysis (FAO)" as well as examining developmental projects in Turkey and Libya.

NICK CRAWFORD and his wife, WHIT are still living in Nashville, Tennessee. He nicely writes: "I am presently attempting to hold down a joint appointment as Assistant Professor of Geography at Peabody College and Assistant Professor of Geology at Vanderbilt University while working full time on my dissertation, which is a study of the interrelationships between subterranean stream piracy, surface morphology, subsurface hydrology, cavern development, parallel slope retreat, structure, and lithology in areas where carbonate rock is overlain by less soluble and impermeable caprock. My wife, Whit, and I have endured the last two summers (and what seems like virtually every weekend) living in an old travel trailor which I have converted into a mobile laboratory for field research. And still the field research goes on and on... I fully intend to spend the next thirty years on this research before publishing a fifty volume dissertation which will explain everything about karst topography. Of major interest in the area of family happenings -- Whit, my beloved and faithful wife and the world's best field and lab assistant, is getting too fat to work! We are expecting our first child in January, 1974. The baby will arrive during the week so as not to interfere with weekend field research. It is our intention to strongly encourage (actually force) our child to become an "indoor, library-type geographer!"

HAROLD F. CREVELING (PhD 1951) has retired from col-

lege teaching. Harold and his wife Mildred are actively participating in many of their city's social and cultural activities.

HARRY CUMMINGS (MA 1973, PhD forthcoming) is busily at work completing his dissertation on regional development in Southeastern Asia. He writes: "A mere one-and-a-half years away from Clark has transformed Marion and me into middle class suburban dwellers. We were married in December, 1973, and did a round-the-world business-honeymoon trip. We're now living in a house in suburbia purchased September 1, 1973. No plans for a family in the immediate future. I'm still working for International Development Research Center in Ottawa. During this year I will have spent some ninety days in Southeast Asia. I plan to teach a graduate seminar at the University of Ottawa on the problems and methods of underdevelopment in the spring of 1974.

FLOYD F. CUNNINGHAM (MA 1928, PhD 1930) reports: "I am very busy writing and managing our apartment building since my retirement from Southern Illinois University. I spent 40 years in university teaching and 30 years as chairman."

RICHARD L. DAY (BA 1948, MA 1950) is conducting research for the National Railroad Passenger Corporation (AMTRACK), surveying the attitudes and travel habits of passengers on southern long-distance trains.

VEVA K. DEAN (MA 1940, PhD 1949) is still enjoying retirement.

CONRAD J. KIEWIET DE JONGE (BA 1947, MA 1949, PhD 1951) continues to teach at San Diego State University in San Diego, California. For the second semester of 1973-1974 he will be on sabbatical leave, participating in research conducted by the Centre of Applied Geography at the University of Strasbourg in France. In the past year he has prepared translations of two books by J. Tricart: Introduction to Climatic Geomorphology, St. Martin's Press, and The Landforms of the Tropics, Forests, and Savannas, also published by St. Martin's. Presently, he is working on a translation of another of Tricart's

books, The Landforms of Dry Regions, and hopes to have it complete by 1975. This past year he became a member of the Editorial Board of the Revue de Geomorphologie Dybamique, which has recently become bi-lingual (English and French). He notes that he hopes to receive articles for publication from American colleagues.

SIGISMOND deR. DIETTRICH (PhD 1931) is living in Puerto Rico and is the Assistant Vice-President of Academic Affairs at the Inter American University there. He has been conducting some research on the problems of the oceans as a future resource base. He writes: "After years of work a new concept of a university rather than academic sena te, constituted of representatives of faculty, administration, and students, has been presented and approved by all involved and the new constitution and by-laws of the University Senate of IAU have been officially promulgated. I was named by the Board of Trustees as the Executive Secretary of the Senate entrusted with the running of its operation."

DAVID DICHTER (MA, Clark, 1960; PhD, London U., 1962) is currently employed by the International Secretariat for Volunteer Service (Geneva), a 58 intergovernmental organization. He is coordinator of the ISVS Clearinghouse for the United Nations Volunteer Program and also Director of Multinational Volunteer Programs since September, 1971. He is completing a book on the geography of Yemen.

ROBERT P. DONNELL (MA 1971) is on-leave from his teaching position at Framingham State College. With a Mellon Fellowship in Geography, he is currently immersed in PhD coursework and fulfilling residency requirements at Syracuse University.

FAROUK M. EL GAMMAL (MA 1963, PhD 1966) is Associate Professor of Geography at the University of Puerto Rico. He has written an article on "Psycho-spatial Analysis of the Behavior Patterns of Puerto Ricans in Public Recreational Areas" and is starting a textbook on "Geography in the Spanish Language." He is taking his sabbatical

leave, July 1974 till August 1975.

WILMA BELDEN FAIRCHILD (MA 1937) is now living in Pasadena, California. She happily writes: "After three and a half decades at the American Geographical Society in New York, the last twenty-three of them editor of the Geographical Review, I have found a new home in Southern California and have embarked on a new career -- as a free-lance provider of editorial services (copy-editing, proofreading, indexing, bibliography, and so on). It's a fine life!

J. KEITH FRASER (PhD 1964) "Main concerns now are completing the production of the 22nd Congress Proceedings and coordinating metric conversion within the Department of the Environment in Ottawa."

ALFONSO J. FREILE (PhD 1961) is writing an inquiry into the history of geographical thought and has just completed a paper concerned with the Imago Mundi of Pietro d'Avplli. He has been elected director of the board for the Pennsylvania Council of Geographic Education and was 1973 coordinator of the East Lake Meetings of the AAG held in Pittsburg. He hopes that Dr. Cohen will soon return to view "the flags of the countries" which used to be on display in the Geography Work Room at Clark, before the building was renovated.

BOB FRENCH (MA 1972) is Assistant Professor of Geography at the University of Southern Maine in Gorham. He reports: "Chain saws and wood stoves were popular in Maine this winter. Snowmobiles are definitely out! Our camp is now habitable, so come see us, friends."

ROLAND J. FUCHS (MA 1957, PhD 1959) is Professor and Chairman, Department of Geography, University of Hawaii. He has completed with George Demko a book entitled, Geographical Perspectives on the Soviet Union, published by the Ohio State University Press. Professor Fuchs spent this spring semester on sabbatical leave in Asia and Europe.

ALEXANDER R. GASSAWAY (PhD 1971) is with the Depart-

ment of Geography, Portland State University. His recent research involves investigations of the farm milk pickup system for Oregon dairies, and the 'adequacy of geographic distribution of physicians in Oregon'. A recent publication concerns 'Natural and Economic Events Influencing Arctic Food Consumption Data'.

JOHN L. GEORGE (MA 1956, PhD, Boston U., 1968) was elected Chairman, Department of Geography, Salem (Mass.) State College. He has undertaken an historical geography of the dispersal of the Greek neighborhood of Peabody, Mass.

MONIR SAAD GIRGIS (PhD) is Professor of Geography at Edinboro (Pa.) State College. He is presently planning a book about North Africa.

THOMAS E. GLEDHILL (MA 1967) helped develop a new program in career education at Burrillville High (RI) where he works as an earth science instructor.

LOREN GOULD (MA 1959) is Director of Institutional Studies at Worcester State College. He has had a very active year traveling and writing a book concerning senior citizens.

HOWARD L. GREEN (AB 1947, MA 1949) His major interest is in applied geography particularly commercial land use and retail expansion planning. He heads the Howard Green Association Inc. Michigan.

DONALD W. GRIFFIN (PhD 1963) is Professor of Geography, Western Illinois University, Macomb. He has recently published a monograph entitled, "West Central Illinois: A Regional Profile." Cooperative Extension Service, University of Illinois.

ANDREAS GROTEWOLD (MA 1951) teaches in the Department of Geography, Slippery Rock (Pa.) State College. He has recently published "West Germany's Economic Growth," in the Annals of the AAG, Vol. 63, No. 3 (September 1973), pp. 353-365.

NEIL W. HALKYARD (MA) travelled to Mexico in January of this year, and plans to visit the Near East this coming September.

JERRY HALL (PhD 1973) is studying agricultural productivity of specific ethnic groups. He is presently working with the Kleine Gemeinde Mennonites in the Morris-Steinbach area of Manitoba in an attempt to compare their agricultural productivity with that of the Kleine-Gemeinde in British Honduras.

ALAN HARRIS (Clark, 1951-52) is at the University, Hull, Yorkshire, England. He was a contribution of a chapter in H.C. Darby's A New Historical Geography of England (1973).

ROGER HART (MA 1971) will complete two years of field work in Vermont this summer for his PhD dissertation: "The Child's Landscape in a New England Town."

SISTER MARY URSULA HAUK (PhD 1958) has resigned from the presidency of Mount Aloysuis Junior College and has travelled extensively.

ALFRED HECHT (PhD 1972) is conducting research on the effects of road construction on subsistance agricultural economies. In the summer of 1973 he travelled to Paraguay to collect data on this topic. He notes the addition to his family of one daughter, named Melinda Marlene.

RICHARD D. HECOCK (PhD 1966) writes that he "continues to receive support from the Office of Water Resources Research to investigate the spatial aspects of water-based recreation in the State of Oklahoma."

FRANKLIN D. HODGES (MA 1966) is presently at work developing a major program in the Department of Geography and Anthropology at the University of Maine, Portland-Gorham. He writes: "My family and I continue to live on our suburban farm where we practice subsistence farming, ecological sanity, and have pleasant living conditions."

GERRY HOMES (MA 1953) was awarded his PhD at Bath University, 1973. His recent publication concerns 'Regional representation, University of Bath'.

GEORGE M. HOWE (PhD 1956) has spent the academic year 1972-73 as exchange Professor at Conventry College of Education, England. Research interests include Tornado Path Sizes.

JOSEPH B. HOYT (PhD 1954) is Chairman of the Social Sciences Division, Southern Connecticut State College. He is presently researching man's modification of the natural landscape. He entertained Mr. and Mrs. Gerald Hones in the summer of '72; has just learned that Gerry (Clark, 1948-49) has just received his doctorate from the University of London.

ALBERT H. JACKMAN (PhD 1953; in residence 1947-50) is studying the impact of highway construction on wilderness areas of the Subanarctic.

PRESTON JAMES (PhD 1923, LLD 1972) is Maxwell Professor Emeritus, Syracuse University; Adjunct Professor, Florida Atlantic University. Research he notes is continuing on the history of Geography: specifically 1) a history of the Association of American Geographers for the Association; and 2) The American School of Geography for the Commission on the History of Geographical Thought of the International Geographical Union. Last year he received the Helen Culver Gold Medal of the Geographic Society of Chicago; and the honorary degree LHD from Syracuse University.

MRS. JESSIE THORNTON JESSEMAN (MA) writes that part of her family is now living in North Carolina "so we are spending winters there instead of Florida."

WILLIAM F. KANE, JR. (MA 1954) reports: "travel to Japan, June 1973, where I addressed seminars in Tokyo and Osaka sponsored by JETRO (Japanese External Trade Organization) and the U.S. Department of Commerce on reverse investment and trade with the U.S.

HARRY KIRCHER (PhD 1961) is Professor in the Department of Earth Sciences at the Southern Illinois

University in Edwardsville. He is the author of 'Sequent Occupance of Metro-East' to appear in the forthcoming issue of Bulletin, Illinois Geographical Society.

MISS ESTHER L. KISTLER (MA) took a two-month trip by Greyhound Bus to Florida, Texas, Colorado, Pennsylvania, and Connecticut during March and April of 1972.

RICHARD J. KOPEC (PhD 1965) is at the University of North Carolina-Chapel Hill. He reports research on: environmental heat stress variations as measured by the WBGT Index; and a spatial analysis of aerosol pollution in the Chapel Hill area.

ARTHUR J. KRIM has been Associate Survey Director of the Cambridge Historical Commission since 1971 and "thoroughly enjoys the work."

OLIVER H. LAINE (MA 1941, PhD 1951) is presently an aviation education specialist for the Federal Aviation Administration in Washington, D.C.. He recently travelled to England and Greece, and notes that having just received his private pilot's license, he is now working on an instrument rating.

BURCE L. LAROSE (MA 1967) is currently preparing for the eigth meeting of the Eastern Historical Geographers Association to be held at Briarcliff College in April 1974. This past year he presented two papers: "Urbanization in the Ante Bellum South, 1800-1860," given at the Historical Urbanization of North America Conference at York, Pennsylvania in January 1973; and "Spatial Organization of the Thoroughbred Racing Industry in North America," presented at the AAG regional meetings in Philidelphia in October, 1973 (co-authored with Robert Weiner).

MERLIN PAUL LAWSON (MA 1966, PhD 1973) is Assistant Professor, University of Nebraska. Research recently undertaken includes the "Historical Climatology of the Prairie Plains" and "Images of the Plains". He is also involved in the development of topical atlases of Nebraska.

MINNIE E. LEMAIRE (MA 1932, PhD 1935) is now living in Holden, Massachusetts, having retired from Mount Holyoke College. She writes: "I now have an office at Clark, just off the J. K. Wright Library, courtesy of the Geography Department and Saul Cohen. Some change from the 30's as you wander about the campus, the new buildings, and the remodelled Geography quarters."

SALLY LEMAIRE (1968-1970) spent last summer travelling in East Africa -- Kenya, Tanzania, Zambia, and Ethiopia. She travelled by bus, train, and plane, and decided that the U.S. could learn quite a bit about effective mass transportation from the Africans. In September, 1973, she began a new job as a Center Director for the YMCA of Bridgeport, Connecticut.

THOMAS LEWIS (1966-67) continues to work on his dissertation for the Department of Geography at Rutgers University, and is instructing at Manchester Community College.

THEODORE J. LIARD, JR. (MA) is just starting government research on toponymy.

RICHARD A. LOCKHART (MA 1957) is with the Cambridge Planning and Development Department. He has recently worked on an analysis of land use potential in Cambridge.

JOHN C. LOWE (PhD 1969) is now Associate Professor. His final draft of a text entitled Spatial Interaction: An Introduction to the Geography of Movement is being prepared.

EMANUEL MAIER (PhD 1961, residence 1954-56) Chairman, Department of Earth Sciences and Geography at Bridgewater (Mass.) State College, has been appointed as an Associate of the Columbia University Seminar in Sociology. He has undertaken research on the "Territorial Behavior of Fiddler Crabs at the Biological Field Station of the University of Massachusetts on Nantucket, Summers: 1972 and 1973.

SHANNON McCUNE (PhD 1939, LLD 1961) is with the De-

partment of Geography, University of Florida. He has been working on the geography of the Ryuku Islands and other areas in the Far East.

HENRY R. McCUTCHEON (MA 1966, PhD 1970) continues to teach at the Memorial University of Newfoundland. He is presently completing a project on the evolution of a network of service centers in northeastern Newfoundland. He will be taking a leave of absence from his university from January to August, 1974 to work with the Economic Planning Division of the Province of Newfoundland and Labrador.

NEVA McDAVITT (MA 1929).

WALLACE E. McINTYRE (PhD 1951) notes that his son was married in March 1973 and is resident physician in Grady Hispital, Atlanta.

BERNIE MAY (1967-1969) and his wife, Sue, have moved from Massachusetts to New York City. He writes: "I'm now a Senior Research Analyst in the Research and Planning Unit of Manufacturers Hanover Corporation, involved in regional analysis and geographically oriented marketing strategy studies. It's a vast improvement over supermarket site evaluation in terms of research sophistication, professional development, and pleasant working environment. Geographers might do well to look outside academic confines to get a feel for the state of the applied art, and maybe even a job."

NATHAN (Nate) MELEEN (MA 1964, at Clark 1962-66, 69-70) is Assistant Professor of Earth Science and Geography at Oral Roberts University. He is studying the effects of strip mining on stream regimen in Oklahoma.

MICHAEL G. MENSOIAN (BA 1949) is Professor and Chairman of the Department of Regional Studies at Boston State College. This newly-renamed department now has 153 majors and 71 minors.

FREDERICK S. MERRIAM (BA 1939, MA 1946) is a Registered Representative at Waddell and Reed, Inc.

D. DAVID MILLER (MA 1967) is at the University of Toronto. He spent the summer on an archaeological dig in the "wilds of Staffordshire."

JOSEPH E. MINOR (1965-1971) is presently an instructor in ecology at the International Academy for Continuous Education, in Sherborne, England. Recently, he was elected honorary member of the Northleach Rural District Council -- Northleach, Gloucestershire. He is conducting research on the relation between hermeneutics and ecology and geography.

RICHARD E. MURPHY (PhD 1957) is Professor and Chairman, Geography Department, University of New Mexico. He spent his 1972-73 sabbatical at the Sorbonne in Paris. Current research includes classification and world distribution of landforms and ethnic groups.

SALVATORE J. NATOLI (MA 1957, PhD 1967) continues as Educational Affairs Director for the AAG. Publications for the year include: Experiences in Inquiry, Allyn and Bacon, forthcoming (contributing author and editor); Sources of Funds for College Geography Departments AAG, 1973; "Geography," Encyclopedia Britannica Yearbook, 1974. Also, he served as editor for the third edition of Geography as a Professional Field, AAG, 1974; and was technical editor for the forthcoming CCG book, Perspectives on Environment. He writes that he continues to enjoy receiving and reading the Monadnock.

H.L. NELSON (PhD 1954) is Professor of Geography at the University of Wisconsin-La Crosse.

J. WARREN NYSTROM (BA 1936, MA 1937, PhD 1942) is now in his eigth year as Executive Director of the AAG. He has been appointed by the Department of State as the U.S. member on the Commission on Geography of the Pan-American Institute of Geography and History and attended their meetings in Panama in May, 1973. He plans to attend the IGU regional meetings in New Zealand in December, 1974.

HOWARD L. OHMAN (BA 1947, MA 1949) is now residing in

Alexandria, Virginia.

RALPH E. OLSON (PhD 1946) continues his research on the Benelux countries, with particular attention to Luxembourg. He expects to return there for further field work on his next sabbatical in 1974-75. In the early summer of 1973 he and his wife travelled to Central and South America, their first visit to that part of the world.

RUBEN L. PARSON (MA 1934, PhD 1943) has retired from professorship at Saint Cloud State College, 1973. He states, "Scheduled to help with a 'forty years after' monograph pertaining to 'Three Months In The Field' course conducted by the Graduate School of Geography 1934.

ROBERT A. PAUL (MA) is the Chairman, Department of Natural Sciences, Northern Essex Community College. An N.S.F. grant has taken him to Purdue University for the "Development of A-V-T Programs in the Sciences. Other research involves Cloud Identification and Classification.

JOHN W. PAWLING (MA 1956) is at the Department of Geography at Temple University. During 1973 he worked as a Senior Phot Interpreter to the Delaware Valley Regional Planning Commission in a nine-county land use study of the Philadelphia SMSA. During June through December of 1974 he will undertake a six-month study of water resource development in Kenya and Tanzania. Articles that he has completed over the year include "Trend Surface Analysis of Local Relief in the Southern Peninsula of Michigan," The Professional Geographer, August 1973; "Design for the Teaching of Landform Geography, Journal of Geography, January 1973; "Commentary on the Early Perception of a High Plan in Michigan," Annals, AAG, December 1972.

G. ETZEL PEARCY (MA 1932, PhD 1940) is presently investigating the county structure in the U.S. In the past few years his research has involved the investigation of political entities and boundaries, both international and domestic.

RAFAEL PICO (MA 1934, PhD 1938, LLD (Hon.) 1962) has

prepared a book on "The Geography of Puerto Rico" scheduled to be published by Aldine-Atherton, March 1974. He has been elected to national boards of directors of Grand Union and Commonwealth Oil Refining Co., Inc. (Corco). He reports frequent travel to New York and occasional trips to the Dominican Republic.

RICHARD J. PIKE (MA 1963) writes: "Last fall, spent an idyllic two weeks in Northern Arizona, visiting friends in Flagstaff and batting about the Indian reservations. Work continues unabated (interest in landscape morphometry), with several publications in various stages. Jane hopes to wrap up her doctorate (geology) at Stanford this year. I would dearly like to hear from any of the workroom crowd from the 1960-62 vintage. (My position at the U.S.G.S. leaves me too isolated from the geographic community)."

THEODORE S. PIKORA (MA 1964) received his doctorate from Boston University in June 1973. Presently he is busily restoring a newly purchased antique house in Salem, Massachusetts.

RICHARD E. PRESTON (PhD 1960) is with the University of Waterloo, Waterloo Ontario. Research interests concern "Structure of Central Place Systems in the Pacific Northwest and Ontario" as well as "Land Use Succession in Central Commercial Areas." He is editor of Applied Geography and the Human Environment.

HUGH C. PRINCE (Clark 1971) is at the Department of Geography, University College London and is studying eighteenth and nineteenth English landscape.

AGNES RENNER (St. Ambrose College) died September 13, 1973 at Davenport, Iowa.

PAULINE RIORDAN (MA 1959).

WALTER W. RISTOW (PhD 1937) has traveled to Norway, Sweden, Budapest, Czechoslovakia in regard to "The History of Cartography," his recent research.

J. LEWIS ROBINSON (PhD 1946) is with the Geography Department, University of British Columbia. He is currently on leave, working on the historical geography of Vancouver. Last March Dr. Robinson was made an Honorary Fellow of the Chicago Geographical Society.

JOHN F. ROONEY (PhD 1966) has just finished a book entitled, A Geography of American Sport, published by Addison Wesley. He notes that he and his family spent much of last summer near Alton Bay, New Hampshire, and they hope to do it again this year.

PETER P. SAKALOWSKY, JR. (MA 1966) is Assistant Professor of Geography, Southern Connecticut State College. Recent research concerns coastal processes and beach morphology, as well as an analysis of stream meandering.

GERALD W. SCHULTZ (PhD) is Associate Professor, Geography/Geology Department, Drake University.

HARLEY E. SCOTT (MA 1963) is enrolled in the E&D at Indiana University, Bloomington, Indiana.

EARL B. SHAW (PhD 1933) notes that he has done very little research since retirement from Assumption College in 1971. He writes: "Retirement is much less interesting and enjoyable than the active years of geographic teaching and research. However, Emerson was relatively correct in his famous essay on Compensation; for now there is plenty of time for reading, travel, rest, and a bit of research."

ADA M. SHAWKEY (1948) is Chairman of the Geography Department at Framingham State College.

JAMES A. SHEAR (PhD 1952) has been appointed head of the Department of Geography at the University of Georgia in 1972. He continues to do research on drought.

SUK-HAN SHIN (MA 1967) is presently teaching at East Washington St. College. Environmental conservation is one of his more important concerns.

DR. ANGELIKA SIEVERS (MA, Clark, 1936), Vechta, W. Germany. She has undertaken research on development problems of Ceylon and Malaysia and curcicular problems in developing countries (based on experience in Nigeria). She reports attendance at IGU Congress in Montreal: "meeting of some old Clark friends, missing others."

ROBERT B. SIMPSON (MA, PhD) continues to direct the Dartmouth College Project in Remote Sensing. Last summer he re-visited the Amazon Valley for the first time since 1946, "in a guick, ten-day trip." This fall he and his wife, Dorothy, plan to visit Florida for a month.

HELEN BOYER SMITH (MA 1938) is President of The College Club of Cincinnati for 1973-74.

PAUL J. SORVO (BA, Clark) now resides in Silver Spring, Md. He has two children: Joela Maria Kustaava (1970) and Erik Paul Johannes (1972).

ROBERT G. STONE has retired in 1971. He has been studying the literature on settlements and architecture in the So. Central and SE Penna Region.

CHARLES A. TELLER (1963-65; Ma 1969) is Assistant Professor of Sociology, University of Texas at Austin. Interests continue in Access to Health Care and Community Studies of Ethnic Conflict in Texas. He reports: "getting to feel more like Texans after two years down here. It's like having one foot in Latin America. We're actually living in what Chicanos call "Atzlan", the occupied territory, and thus fertile ground to pursue research on neo-colonialism."

RAY W. TOBEY (MA 1953) is retired and doing some research on local history to help his area Historical Society. Other than that, "nothing worth reporting."

EUGENE VAN CLEEF (PhD 1925-26) died on November 7, 1973. His colleague at Ohio State, Edward Taaffe, wrote of Van Cleef: "He had remained active and alert and never lost his interest in,

and concern for, our discipline. His wit and wisdom will be sadly missed by those of us in the department with whom he associated closely."

H.E. VAN TUYL (1954-55).

KEITH VAN WINKLE (MA).

CHARLES B. VARNEY (MA 1953, PhD 1963) is Professor of Geography at the University of Wisconsin-Whitewater.

PAUL P. VOURAS (MA 1951) has been studying the depopulation of the mountain villages of Greece where hi did field work last summer. His research has been supported in part by the American Philosophical Society. Presently, he is Chairman of the Geography Department at William Paterson College in Wayne, New Jersey.

LILLIAN H. (Mrs. G. Edmund) WALLACE (MA 1941) is retired from Westfield (Mass.) State College.

MRS. MILDRED M. WALMSLEY (MA 1943, PhD 1952) is teaching in the Division of Interdisciplinary Studies in Social Sciences at Case Western Reserve University in Cleveland, Ohio. Her husband, William, passed away this past March. She is thinking seriously of retiring at the end of the present academic year.

ROBERT S. WEINER has co-authored with Bruce L. Larose (also from Clark) a paper entitled, "Spatial Organization of the Thoroughbred Racing Industry: An Introduction," which was originally given at the Middle States Division Meetings of the AAG in Philadelphia.

NIELS WEST (MA 1967) is at the Department of Geography, Rudgers where he is investigating methods of Environment Assessment and aspects of environmental planning.

SEYMOUR "SI" WEST (MA 1941) retired in April 1973. Since then he has established for himself an out-of-print bookfinding service by mail from his home. In case readers are interested, he

will locate any type of book. His son, Alan, is a senior at Clark.

AARON JOSEPH WRAIGHT (PhD 1951) writes: "I retired from my position as Chief Geographer for the National Oceanic and Atmospheric Administration in June. That terminated also my term as Chairman of the U.S. Board on Geographic Names, which I held the past two years. I am now continuing research on place names.

MARION I. WRIGHT (MA 1946) reports that interest in Eastern Europe has continued with a trip to Czechoslovakia.

A. RUSSELL OLIVER (PhD 1937) died on February 2, 1974.

The Graduate School of Geography, 1973-74

ELAINE F. BOSOWSKI. "Thesis proceeding on its way to completion, looks like I'll finally be packing by bags to leave Clark this Spring. It's been grand, it's been full..."

ANNE BUTTIMER, SR. MARY ANNETTE. She reports appointment to the U.S. National Committee to the I.G.U. (1972-76) and to the NAS Geography Screening Committee for Fulbright-Hays Awards. Recent publications include: "Values in Geography," CCG Research paper #24; and "The Social Scientist and the Future," presented to the Stockholm conference on Values and Planning for the Future (Nov. 1973).

SAUL B. COHEN. "In addition to responsibilities in the School, I've been serving as faculty chairman, have expanded my teaching and am continuing my research into men-in-environment systems with Seymour Wapner, with a focus in this effort on methodology for experiencing new environments. Three articles were published and a small volume, Guide to the Oxford World Atlas - Thinking Geographically about Maps, is in press. I did some traveling out of the country--Israel, the United Kingdom, Venezuela, Puerto Rico - mostly in connection with helping to develop research centers or specific research projects."

MARC EICHEN is (not necessarily in this order): "working for the impeachment of Nixon, writing a dissertation proposal, playing the guitar and piano, exploring learning situations in graduate school, not reading Hegel, and trying to learn and smile with the help of his friends."

KEN GELMAN. "Those dreaded orals are successfully completed; I turn my attention to a dissertation proposal and upcoming research on immigrant, especially Jewish, residential shifts within urban metropolitan areas. Presented a paper in the fall entitled 'Ethnic Corridors in the Metropolis' at a meeting of the Eastern Historical Geography Association in College Park, Md.

DOUGLAS JOHNSON reports an active year in three areas: 1. Courses: "continued responsibility for the introductory survey course has been particularly rewarding in terms of involvement with the graduate student T.A.'s. A strong committment since coming to Clark has been to team teaching. Three courses, all of them new, were offered this year in a team format. One, which deals with New England's landscape, is part of a developing Clark-Sturbridge cooperative research effort. 2. Research has focused on the historical geography of New England and the cultural ecology of pastoral nomads. Work in the latter area has been part of the new International development Program and the very active 25 Least Developed Nations project." 3. Publications: Among the papers presented over the year was one in Miamey, Niger at a UNESCO conference concerning pastoral nomadism in the Sahel Zone--Africa, South of the Sahara.

ROGER KASPERSON. "Finished manuscript with Myrna Breitbart entitled, 'Participation, Decentralization and Advocacy Planning,' intended for publication as a CCG Resource paper. Launched a year-long sequence of courses dealing with citizen participation, advocacy planning, and dissent. I continue to brave the fickle fortunes of administrative life at Clark.

LAURENCE "DUTCH" KLUGMAN. "Working in Baltimore on the dissertation concerning FHA homewonership programs and the Baltimore housing market. Unless I step on any alligators, I expect to be finished in late Spring. It can be done."

LARRY LEWIS. He reports continuing research on slope behavior in the tropics with articles published or forthcoming on slopes in: Geology, Geomorphologie Dynamique and Proceedings of the AAG.

FRANK MILLS. "During the period, Jan. to Aug. 1973, I was in St. Kitts, West Indies engaged in actual field research for my dissertation. It is entitled: "The Development of Alternative Farming Systems and Prospects for Change in the Structure of Agriculture in St. Kitts." I

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hope to be finished during the summer, and look forward to returning to the Caribbean for a few years of teaching and further agricultural development research."

RICHARD PEET. "Essentially I have spent the last year finishing my book Poverty and Inequality in Capitalist America. I have written a number of papers and reviews and am busily reading Karl Marx.

AMRAM PRUGININ. He received his BA and MA from Hebrew University, Jerusalem. His present interests are: the politics or resource management, and policy and decision-making processes in relation to environmental quality on the local and regional level.

GRAHAM D. ROWLES. "I'm really enjoying my dissertation research into geographical aspects of aging in an urban neighborhood. I have met some incredible people. In addition, I have drafted a paper for a forthcoming book of essays, have done some consulting work, and have enjoyed a successful first season as a soccer coach (professional, of course!). Ruth is designing maps for the city and keeping me informed about events at City Hall.

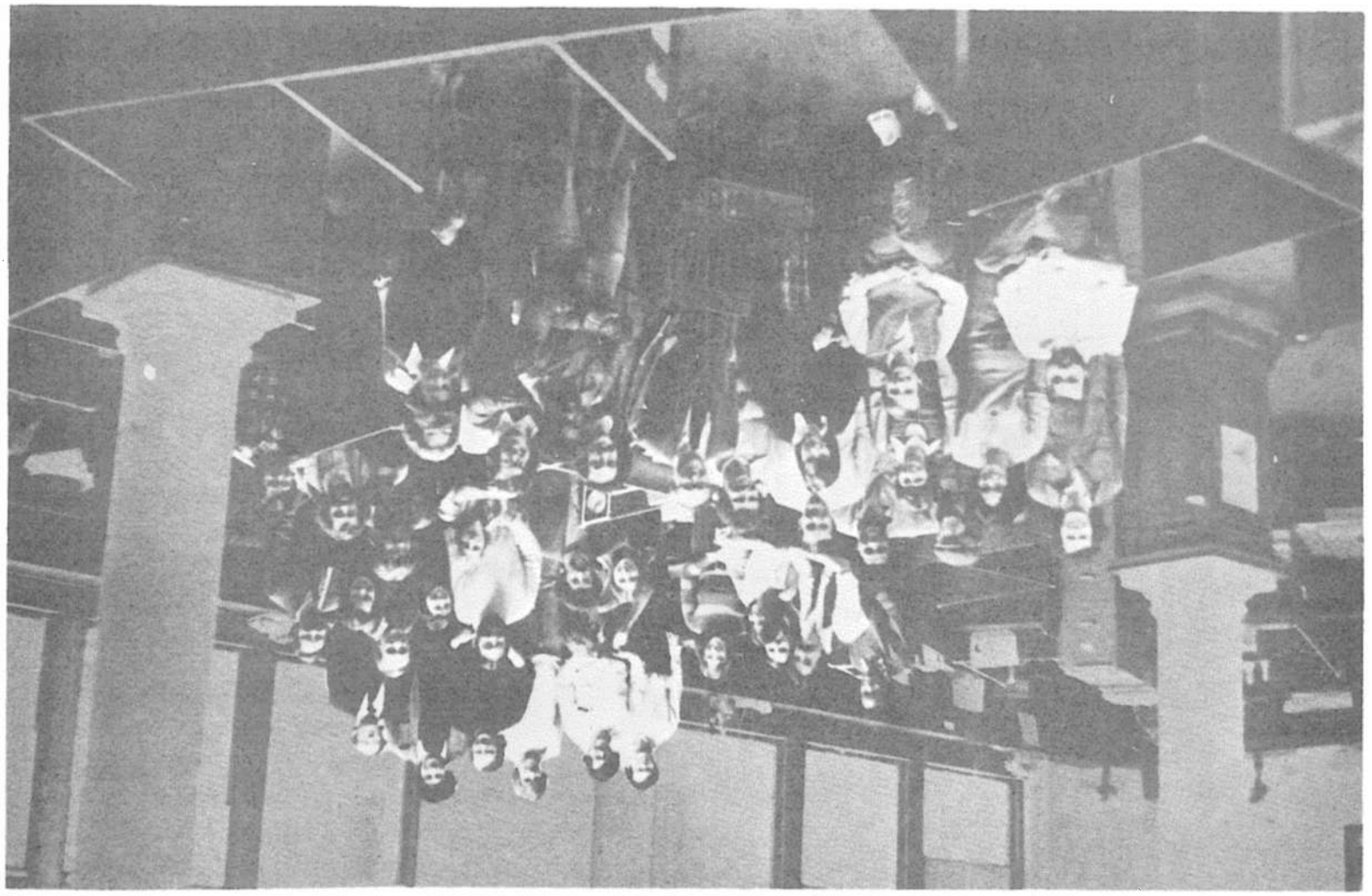
FARRON VOGEL. "My current interest is rural development, both historically (19th Century New England) and in the less developed countries of today. The focus is on how change is reflected in the diet of rural peoples, both historically and culturally."

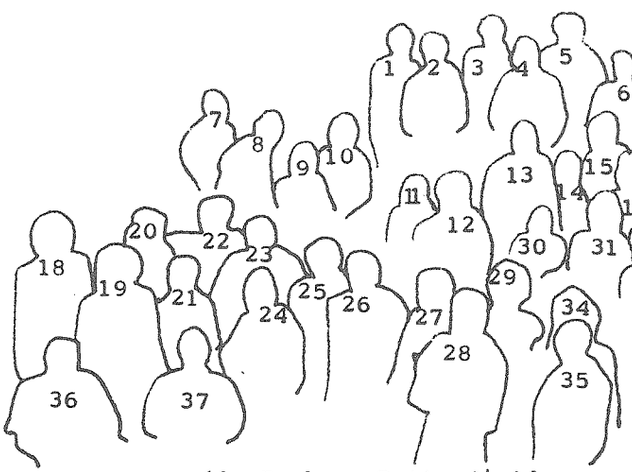
JAMES WOOD. He writes of: 1) involvement in an internship at Old Sturbridge Village researching aspects of the environmental perception of the New England farmer of the 1820s and 1830s; 2) research projects dealing with societal response to natural and man-made hazards.

CAROL ZIMMERMAN. "For 73-74, I'm on an internship with an economic analysis project for the Hartford region. It envolves business, governmental and academic cooperation to conduct an inter-industry

analysis. The results of the project will be used to develop an on-going system for economic planning and policy development which can be translated into legislation."

DAVID SEAMON. After having spent a year on leave in England, he is completing his third year of graduate work at Clark. He will take his orals in the Spring, and then begin work on his dissertation, tentatively entitled, "A Phenomenological Investigation of Geographical Experience."





1. Steve Sawyer
2. Alan Sharaf
3. Bret Halverson
4. Michael Enders
5. David Pijawka
6. Martyn Bowden
7. Laban Misimba
8. Bill Renwick
9. Esther Rolnitzky
10. Farron Vogel
11. Barbara Buttenfield
12. Larry Lewis
13. Elliott Wessler
14. Judy Dworkin
15. Ingemar Emker
16. Ann Buttimer
17. Douglas Johnson
18. David Seamon
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20. David Campbell
21. Eva Nowosielske
22. Frank Mills
23. Len Berry
24. Sisca Vierstra
25. Amram Pruginin
26. Saul Cohen
27. Marc Eichen
28. Forrest Cason
29. Ken Gelman
30. Paul Oberg
31. Mick Godkin
32. Graham Rowles
33. Mitch Harvey
34. Polly Carew
35. Marylou Orcutt
36. George McCleary
37. Norm Carpenter