THE MORPHOLOGY OF LANDSCAPE

Carl O. Sauer

Introduction

Diverse opinions regarding the nature of geography are still common. The label, geography, as is the case with history, is a trustworthy indication as to the matter contained. As long as geographers disagree as to their subject it will be necessary,
the geophysical part of cosmologic science; (2) the study of life-forms as subject to their physical environment, or a part of biophysics, dealing with tropisms; and (3) the study of the areal or habitat differentiation of the earth, or chorology. In these three fields there is partial accordence of phenomena, but little of relation; One may choose between the three; they may hardly be consolidated into one discipline.

The great fields of knowledge exist because they are universally recognized as being concerned with a great category of phenomena. The experience of mankind, not the inquiry of the specialist, has made the primary subdivisions of knowledge. Botany is the study of plants, and geology of rocks, because these are two important parts of fact are evident to all intelligence that has concerned itself with the observation of nature. In the same sense, area or landscape is the field of geography, because it is a naively given, important section of reality, not a sophisticated thesis. Geography assumes the responsibility for the study of areas because there exists a common curiosity about that subject. The fact that every school child knows that geography provides information about different countries is enough to establish the validity of such a definition.

No other subject has preempted the study of area. Others, such as historians and geologists, may concern themselves with areal phenomena, but in that case they are avowedly using geologic facts for their own ends, or using a different discipline under the name of geography, the interest in the study of areas would not be destroyed thereby. The subject existed long before the name was coined. The literature of geography in the sense of chorology begins with parts of the earliest sages and myths, vivid as they are with the sense of place and of man's contest with nature. The most precise expression of geographic knowledge is found in the map, an immaterial symbol. The Greeks wrote geographic accounts under such designations as periploos, periodica, and periplus long before the name geography was used. Yet even the present name is more than two thousand years old. Geographic treatises appear in numbers among the earliest printed books. Expositions have been the dramatic expression of geography. The great geographic societies justify having accorded a place of honor to explorers. "Hic et ubique" is the device under which geography has stood always. The universality and persistence of the chorologic interest and the priority of claim which geography has to this field are the evidences on which the case for the popular definition may rest.

We may therefore be content with the simple connotation of the Greek word which the subject uses as its name, knowledge of area. The Germans have translated it as Landschaftslehre or Landerkunde, the knowledge of landscape or of lands. The other term, Erdatunde, the science of the earth in general, is falling rapidly into disuse.

The Morphology of Landscape

of the earth, or accepts them from other sciences; for its own part it is oriented about areal expression.*

With this preference of synthetic areal knowledge to general earth science the entire tradition of geography is in agreement. The independence of areal phenomena.—Probably not even the adherents of other, recent schools of geography would deny place for such a view of the subject, but they deem this naively given body of facts inadequate to establishe a science, or at the most would consider it an auxiliary discipline which compiles fragmentary evidence to find its place ultimately in a general geophysical or biophysical system. The argument then is shifted from the phenomenal content to the nature of the connection of the phenomena. We assert the place for a science that finds its entire field in the landscape on the basis of the significant reality of chorologic relations. The phenomena that make up an area are not simply assorted but are associated, or interdependent. To discover this area "connection of the phenomena and their order" is a scientific task, according to our position the only one in which geography should devote its energies. The position falls only if the non-reality of area be shown. The competence to arrive at orderly conclusions is not affected in this case by the question of coherence or inchoherence of the data, for there is characteristic association, as we find them in the area, is an expression of coherence. The element of time is admittedly present in the association of geographic facts, which are thereby in large part non-recurrent. This, however, places them beyond the reach of scientific inquiry only in a very narrow sense, for time as a factor has a well-recognized place in many scientific fields, where time is not simply a term for some identifiable causal relation. ...

Summary of the objective of geography. — The task of geography is conceived as the development of a critical system which embraces the pheno-mology of landscape, in order to grasp in all of its meaning and color the varied terrestrial scene. Indirectly Vidal de la Blache has stated this position by cautioning against considering "the earth as the scene on which the activity of man unfolds itself", without reflecting that this scene is itself living.** It includes the works of man as an integral expression of the scene. This position is derived from Herodotus rather than from Thales. Modern geography is the modern expression of the most ancient geography.

The objects which exist together in the landscape exist in interrelation. We assert that they constitute a reality as a whole which is not expressed by a consideration of the constituent parts separately, that area has form, structure, and function, and hence position in a system, and that it is subject to development, change, and completion. Without this view of areal reality and relation, there exist only

---


** Principes de la géographie humaine, p. 6 (1922).
special disciplines, not geography as generally understood. The situation is analogous to history, which may be divided among economics, government, sociology, and so on; but when this is done the result is not history.

The Content of Landscape

Definition of landscape. - The term 'landscape' is proposed to denote the unit concept of geography, to characterize the peculiarly geographic association of facts. Equivalent terms in a sense are 'area' and 'region.' Area is of course a general concept not an order of magnitude. Landscape is the English equivalent of the term German geographers are using largely and strictly has the same meaning, a land shape, to be defined, therefore, as an area made up of a distinct association of forms, both physical and cultural.¹

The facts of geography are plain facts: their association gives rise to the concept of landscape. Similarly, the facts of history are time facts; their association gives rise to the concept of period. By definition, the landscape has identity that is based on recognizable constitution, limits, and generic relation to other landscapes, integrated, dependent forms. The landscape is considered, therefore, in a sense as fully understood the nature of an area until one "has learned to see it as an organic unit comprehending land and life in terms of each other."² It has seemed desirable to introduce this point prior to its elaboration because it is very different from the unit concept of physical process of the physiographer or of environmental influence, the climatic correlation of energy, and the form content of an areal habitat are three different things.

Landscape has generic meaning. - In the sense here used, landscape is not simply an actual scene viewed by an observer. The geographic landscape is a generalization derived from the observation of individual scenes. Croce's remark that "the painter's"³ has therefore only limited validity. The geographer may describe the individual landscape and only as a type or possibly as a variant from type, but always he has in mind the generic, and proceeds by comparison.

An ordered presentation of the landscapes of the earth is a formidable undertaking. Beginning with infinite diversity, salient and related features are selected

¹ Sich, J., Auffassung der naturlichen Ggmna (1924), has proposed the term 'Chora' to designate the same idea.

² "Die Ammoniakproduktion als harmonisches Organismus," Geogr. Z. Vol. 27, p. 49 (1921).

³ Quoted by Barth, P., Philosophie der Geschichte (ed. 2), p. 10.

in order to establish the character of the landscape and to place it in a system. Yet generic quality is non-existent in the sense of the biologic world. Every landscape has individuality as well as relation to other landscapes, and the same is true of the forms that make it up. No valley is quite like any other valley; no city the exact replica of some other city. In so far as these qualities remain completely unrelated they are beyond the reach of systematic treatment, beyond that organized knowledge that we call science. "No science can rest at the level of mere perception. . . . The so-called descriptive natural sciences, zoology and botany, do not remain content to regard the singular, they raise themselves to concepts of species, genus, family, order, class, type.⁴ "There is no idiographic science, that is, one that describes the individual merely as such. Geography formerly was idiographic; long since it has attempted to become nomothetic, and no geographer would hold it at its previous level.⁵ Whatever opinion one may hold about natural law, or nomothetic, genetic, or causal relation, a definition of landscape as singular, unorganized, or unrelated has no scientific value.

Element of personal judgment in the selection of content. - It is true that in the selection of the generic characteristics of landscape the geographer is guided only by his own judgment that they are characteristic, that is, repeating; that they are arranged into a pattern, or have structural quality, and that the landscape accurately belongs to a specific group in the general series of landscapes. Croce objects to a science of history on the ground that history is without logical criteria: "The criterion is the choice itself, conditioned, like every economic art, by knowledge of the actual situation. This selection is certainly conducted with intelligence, but not with the application of a philosophic criterion, and is justified only in and by itself. For this reason we speak of the fine tact, or sentiment, or instinct of the learned man."⁶ A similar objection is sometimes urged against the scientific competence of geographers, because it is unable to establish complete, rigid logical control and perforce relies upon the option of the student. The geographer is in fact continually exercising freedom of choice as to the materials which he includes in his observations, but he is also continually drawing inferences as to their relation. His method, imperfect as it may be, is based on induction; he deals with sequences, though he may not regard these as a simple causal relation.

If we consider a given type of landscape, for example a North European heath, we may put down notes such as the following:

The sky is dull, ordinarily partly overcast, the horizon is indistinct and rarely more than a half-hour miles distant, though seen from a height. The upland is gently and irregularly rolling and descends to broad, flat basins. There are no long slopes and no symmetrical patterns of surface form. Watercourses are short, with clear brownish water, and perennial. The brooks

⁴ Barth, op. cit., p. 11.
⁵ ibid, p. 29.
⁶ On History, pp. 109, 110. The statement applies to the history that has the goal simply of "making the past live again." There is, however, also a phenomenologic history, which may discover related forms and their expression.
end in irregular stamps, with indistinct borders. Coarse gravel and boulders form marginal strips along the water bodies. The upland is covered with heather, forest, and bogs. Clumps of juniper abound, especially on the spicker, drier slopes. Cart traces lie along the longer ridges beneath the sand. Small flocks of sheep are scattered widely over the land. The almost complete absence of the works of man is notable. There are no fields or other enclosed tracts. The only convenient intersections of cart traces.

The account is not that of an individual scene, but a summation of general characteristics. References to other types of landscape are introduced by implication. Relations of form elements within the landscape are also noted. The items selected are based upon "knowledge of the actual situation" and there is an attempt at a synthesis of the form elements. The significance of the personal element by agreeing on a "predetermined mode of inquiry," which shall be logical.

The natural and the cultural landscape. - "Human geography does not oppose itself to a geography from which the human element is excluded; such a one has not yielded correct concepts in the minds of a few exclusive specialists." It is a forcible abstraction, by every good geographic tradition a tour de force, to consider a landscape as though it were devoid of life. Because we are interested primarily in "cultures which grew with original vigor out of the lap of a maternal natural landscape, to which each is bound in the whole course of its existence," geography is based on the reality of the union of physical and cultural elements of the landscape. The content of landscape is found therefore in the physical qualities of area that are significant to man and in the forms of the use of the area, in facts of physical background and facts of human culture. A valuable discussion of this principle is given by Kroeber under the title "Natur- und Kulturlandschaft." For the first half of the chapter of landscape we may use the designation 'site,' which has become well established in plant ecology. A forest site is not simply the place where a forest stands; in its full connotation, the name is a qualitative expression of place in terms of forest growth, usually for the particular forest association that is the occupation of the site. In this sense the physical area is the sum of all natural resources that man has at his disposal in that area. It is beyond his power to add to them; he may 'develop' them, ignore them in part, or subtract from them by exploitation.

The second half of landscape viewed as a bilateral unit is its cultural expression. There is a strictly geographic way of thinking of culture; namely, as the impress of the works of man upon the area. We may think of people as associated within and with an area, as we may think of them as groups associated in descent or tradition. In the first case we are thinking of culture as a geographic expression, composed of forms which are part of geographic phenomenology. In this view there is no place for a dualism of landscape.

The Application of the Morphologic Method

Form of induction. - The systematic organization of the content of landscape proceeds with the repression of a priori theories concerning it. The mapping and ordering of phenomena as forms that are integrated into structures and the

---

16 Vidal de la Blache, P., op. cit., p. 3.
Ziehe, Gesell, E. Erdkunde, Berlin (1923), p. 83. He states the content of geography as being "in the area (Raum) most vivid with its surfaces, lines, and points, its form, circumference, and content. The relations to geometry, the pure spatial science, become even more intimate, when not only the area as such, but its position with reference to other areas is considered."
comparative study of the data as thus organized constitute the morphologic method of synthesis, a special empirical method. Morphology rests upon the is, a structure to which certain components are necessary, these component structures is recognized because of functional equivalence, the forms then being into developmental sequence, ranging from incipient to final or completed stage, as, for example, in the biogenery of Herbert Spencer, but only organized until concepts that are related. Without being committed in any sense to a general or biogeographic law, the organic analogy has proved most useful throughout the fields. The term 'morphology' originated with Goethe and expresses his contribution to modern science. It may be well to recall that he turned to biological and geologic studies because he was interested in the nature and limits of cognition. Believing concluded: "One need not seek for something beyond the physical knowledge, he summary the whole (Lehrbuch)." Thus originated his form studies, and especially those of homology of form. His method of scientific inquiry rested upon a definite philo-

Preparatory Systematic Description

The first step in morphologic study. – Historically "geography commenced by describing and registering, that is a systematic study. It proceeded thenceupon to dissection of observed facts in by some predetermined order that represents a purpose of morphologic relation and is really the beginning of morphologic synthesis. It is therefore distinguishable from morphology not at all in principle

The Morphology of Landscape

but in that it lies at a lower critical level. The relation is not dissimilar to that

between taxonomy and biologic morphology.

Descriptive terminology. – The problem of geographic description differs from that of taxonomy principally in the availability of terms. The facts of area have been under popular observation to such an extent that a new terminology is for the most part not necessary. Salisbury held that the forms of landscape had generally received serviceable popular names and that codification might proceed from popular parlance without the coining of new terms. Proceeding largely in this manner, we are building up a list of form terms, that are being enriched from many areas and many languages. Very many more are still awaiting introduction into geographic literature. These terms apply as largely to soil, drainage, and climatic terms as they do to land surface. Also popular usage has named many vegetational associations and has prepared for us a still largely unsuspected wealth of cultural form terms. Popular terminology is a fairly reliable warrant of the significance of the form, as implied in its adoption. Such names may apply to single form constituents, as glade, tarn, loess. Or they may be form associations of varying magnitude, as heath, steppe, piedmont. Or they may be proper names to designate unit landscapes, as, for example, the regional names that are in use for most parts of France. Such popular nomenclature is rich in genetic meaning, but with sure chorologic judgment it proceeds not from cause but from a generic summation; namely, from form similarities and contrasts.

If systematic description is a desideratum for geography, we are still in great need of enlarging our descriptive vocabulary. The meagerness of our descriptive terms is surprising by comparison with other sciences. Contributing causes may be the idiographic tradition of unrelated description, and the past predilection for process studies which minimized the real multiplicity of forms.

The predetermined descriptive system. – The reduction of description to a system has been largely opposed by geographers and not entirely without cause. Once this happens the geographer is responsible within those limits for any areal study he undertakes, otherwise he is free to roam, to choose, and to leave. We are not concerned here with geography as an art. As a science it must accept all feasible means for the regeneration of its data. However excellent the individualistic, impressionistic selection of phenomena may be, it is an artistic, not a scientific desideratum. The studies in geomorphology, in particular those of the school of Davis, represent perhaps the most determined attempt to oppose uncontrolled freedom of choice in observation by a strict limitation of observations and of method. Different observations may be compared as to their findings only if there is a reasonable agreement as to the classes of facts with which they deal. The attempt at a broad synthesis of regional studies by employing our existing literature necessarily runs into difficulties, because the materials do not fit together. Findings on the most important theme of human destructiveness of natural landscape are very difficult to make because there are no adequate points of reference. Some observers note soil erosion systematically, others casually, and still others may pay no attention to it. If geography is to be systematic and not idiosyncratic, there must be increasing agreement as to items of observation. In particular this

The assumption 'as if,' advanced by Vashinkin as "Philo{

"Philosophie des Ab Ob."
should mean a general descriptive scheme to be followed in the collection of field notes.29 A general descriptive scheme, intended to catalogue areal facts broadly, without recently proposed by Pascag to under the name Beschreibende Landschaftskunde, is the first comprehensive treatment of this subject since v. Richthofen's Firmer Fl 28, 1880. The work of Pascag is of somewhat rough-hewn and it is perhaps the most whole matter of geographic description has had. Its expressive purpose is "first of all visible facts of area without any attempt at explanation and speculations.32 The

for the systematic observation of the phenomena that compose the landscape. The method receiv 26 bles most closely the Chete, a device for the collection of material in theme arising, it helps to observations are ordered. If earlier geographers had been familiar with a method of systematic observation of landscape, it would have been impossible for the characteristic red color of physi 27 cal residual soils to have escaped attention until v. Richthofen discovered that fact.

Passage proceeds with an elaborate schedule of notes covering all forms cases of the landscape, beginning with atmospheric effects and ending with forms associations into larger areal terms. For the further elaboration of the plan the reader is referred to the volume in question, as worthy of careful consideration.

The author has applied his system elsewhere to the 'pure' as against the 'explanatory Okavango, in the northern steppe of the Kalahari.34 That he succeeds in giving admitted.

One may note that Pascag's supposedly purely descriptive procedure is actually based on large experience in areal studies, through which a judgment as to the through morphologic classification is not genetic, but prop- fashioned, though indiscriminating attempt at explanation, is in relation to a device fashioning all that may be wanted in an an a general descriptive scheme for and for deserving explanation until the whole material is sorted.

---

30 Ibid., p. vi.
31 Ibid., p. 5.
32 Hamburg Mit. geog. Gesell, 1919, no. 1.
this line is of determinate or infinite length does not concern us as geographers. In a given measure, certainly, the idea of a climax landscape is useful, a landscape that is, genotypically developed. Through the medium of time, the application of factors to form is time itself a great factor. We are interested in the emphasis of the diagram lies at its right hand; time and factors have only an explanatory role.

This position with reference to the natural landscape involves a reaffirmation of the form relations in the natural landscape. — The large emphasis on the previous statements does not mean that geography is to be transformed because it furnishes the materials out of which man builds his culture. The identity of the physical area rests fundamentally on a distinctive association of physical forms, in the physical world, generic character of area and its genesis are coupled so closely that the one becomes an aid to the recognition of the other. In particular, expression of the physical other physical forms that in many areas may be considered the determinant of form association. An express disclaimer may be entered, however, the phenomenon of the natural landscape. The existence of such bonds has been covered an important light on "the obscurity of their descent," but as geographers of geomorphology, which indeed now appears more complicated than ever, the validity of climatic control and of geologic secular changes of climate being accepted.

Thes emit on apparently self-sufficient categories of time, space, and process may be discerned throughout the natural landscape as a habitat complex. This physical geography is the proper introduction to the full chorologic inquiry which is our goal...
group. Culture is the agent, the natural area is the medium, the cultural landscape the result. Under the influence of a given culture, itself changing through time, the landscape develops, passing through phases, and probably different, that is, alien culture, a rejuvenation of the cultural landscape sets in, or a new landscape is superimposed on remnants of an older one. The natural landscape, which the cultural landscape is formed upon, however, lies in the possible choices for man, as Vidal never grew weary of pointing out. This is the meaning of adaptation, through which, aided by those suggestions which man has derived from nature, perhaps by an imitative process, largely subconscious, we get the feeling of harmony between the human habituation and the landscape into which it so fittingly blends. But these, too, are derived from the mind of man, not imposed by nature, and hence are cultural expressions.

Morphology as Applied to the Branches of Geography

The consolidation of the two diagrams gives an approximation of the total scientific content of geography on the phenomenologic basis by which we have proceeded. They may be readily expressed so as to define the branches of geography. (1) The study of the form categories per se in their general relation, that is, the equivalent of what is called, especially in France and Germany, general geography, the propaedeutic through which the student learns to work with his placing individual landscapes into relation to other landscapes. In the full chorologic sense, this is the ordering of cultural, not of natural landscapes. Such a critical

The Morphology of Landscape

has thereby nearly rounded out a critique of the entire field of geography. Historical geography may be considered as the series of changes which the cultural landscapes have undergone and therefore involves the reconstruction of past cultural landscapes. Of special concern is the catalytic relation of civilized man to area and the effects of the replacement of cultures. From this difficult and little touched field alone may be gained a full realization of the development of the present cultural landscape out of earlier cultures and the natural landscape. Commercial geography deals with the forms of production and the facilities for distribution of the products of areas.

Beyond Science

The morphologic discipline enables the organization of the fields of geography as positive science. A good deal of the meaning of area lies beyond scientific regi- men. The best geography has never disregarded the aesthetic qualities of landscape, to which we now no approach other than the subjective. Humboldt’s "Physiognomy," Bancé’s "soul," Volz’s "rhythm," Gradmann’s "harmony" of landscape, all lie beyond science. They seem to have discovered a symphonic quality in the aural scene, proceeding from a full notate in scientific studies and yet apart therefrom. To some, whatever is mystical is an abomination. Yet it is significant that there are others, and among them some of the best, who believe that hearings observed widely and charted diligently, there yet remains a quality of understanding at a higher plane which may not be reduced to formal process.

Divergent Views of Geography

The geographic thesis of this article is so largely at variance with certain other views of the subject that it may be desirable to set forth in summary form what has been expressed and implied as to contrast in the several positions.

Geomorphology as a branch of geography—German geographers in particular tend to regard geomorphology as an essential division of geography, and use largely the term "Oberflächengeographie," or the record of development of surficial form. The forms considered are ordinarily topographic only. The content of geomorphology has been most broadly defined by Penck, who included the following forms: plains, hill surfaces, valleys, basins, mountains, cavernous forms, sea-coasts.

Vergleichende Ländschaftskunde (Berlin, 1923); Landschaftsgärten der Erde (Berlin, 1923). A good statement of current searchings in this field is by Gradmann, R., "Das harmonische Länd- schaftswesen." Zeits. Gesell. Erdk., 1924, pp. 129-147. Bense has been publishing since 1922 a nom- or anticientific journal, Die Neue Geographie, in which numerous good items are enclosed in a regu- latory periodical shelf.

Morphologie der Erdenoberfläche (1934), vol. 2.

The conclusions presented in this paper are substantially in agreement with Penck's article "On the Definition, Method, and Classification of Geography," Geogr. Anz., 1923, pp. 1-37, with the contrast that a "concrete" landscape takes the place of DeGraaf's "abstract" area relation.
seafloors, islands. These descriptive topographic terms are studied by geo-
morphology as to their derivation, not as to their use significance.

Geomorphology being the history of topography, it derives present surfaces
from previous forms and records the processes involved. A study of the geome-
"massif, concerned with the uplift of the earth block, and the stages of modification
are described by W. G. Mann as "relief features" in the sense is the result of the operation
of erosion and denudation. Certain features, such as peneplains and terrace remnants, thus have
large displacements in elevation; the record of modification of surface. These elements of
the geomorphology the peneplain has been extensively important; the trend of geog-
graphic processes that may select one body of facts illustrative of earth his-
tory, the geographer will use a largely different set of facts which have habitat
working on certain, usually late, chapters of earth history. Conventional historical
phases direct attention to erosional and degradational surfaces in the record of
in our country little geomorphologic work of recent date that is composed
the geologist can and does establish a connection between the fields of
studies of landscape materially where he has preceded the geographer, and we
One of the present needs in American geography is a greater familiarities with and
application of geomorphologic studies

Physiography and physical geography. - When Huxley reapplied the term physi-
ography he disclaimed any desire to re-establish historic geography. He was
natural phenomena in general. The substitute of his treatment is: "An Introduction to
the Study of Nature." He chose the Basin of the Thanes as the area for his
contained abundant material for the demonstration of the general laws of physical
science. Huxley said:

I endeavored to show that the application of the simplest and clearest process of reasoning to
any of these phenomena, suffices to show, lying behind it, a cause, which will again suggest
an elementary conception of what goes on in his parish he must know something about the

Physiography (1877), p. vi.

The Morphology of Landscape

though the phebe he kicks aside, would not be what it is - and where it is, unless a partic-
ular chapter of the earth's history, finished untold ages ago, had been exactly what it was.46

The two central ideas in his mind were the unity of physical law as shown by the
features of the earth and the evolutionary march of the geologic record. It was the
bright hour of dawn in scientific monism, with Huxley delineating at the observa-

46 Ibid., pp. vii, viii.
48 Ibid., p. ix.
49 Ibid., p. 11.
occupants." Vidal de la Blache's thesis that in the relation of man to the earth there exists less of necessary adaptation than of 'possibilities' is worked out with skill and conviction. Excepting for their spirited devotion to the master of French geography, the authors are not really familiar with geographic thought. They do not fairly represent the tenets of geography because they know chiefly the publications of environmentalism, against whom they consider Vidal as the outstanding tabernacle. Vidal will have an honored place in the history of geography, but we are no longer much impressed by his concern to establish decently good relations with rationalistic thought. Rationalism has seen better days than these; we no longer need to come to terms with it by diplomatic compromise. In spite of the defining orientation in geographic thought, the volume directs a quality of dialectic at one geographic school which entitles it to high rank in geographic criticism.

In this country the theme that geography is the study of natural environment has been dominant in the present generation. It has come to be advertised abroad that such is the American definition of geography. The earliest term was 'environmental control.' This was succeeded by 'response,' 'influence,' 'adjustment,' or some other word that does not change the meaning, but substitutes a more cautious way they hope to measure the force that physical environment exerts over man. The landscape as such has no interest for them, but only those cultural features for which a causal connection with the physical environment can be established. The aim, therefore, is to make of geography a part of biophysical, concerned with human tropisms.

Geographic morphology does not deny determinism, nor does it require adhesion to that particular faith in order to qualify in the profession. Geography under the banner of environmentalism represents a dogma, the assertion of a faith that brings rest to a spirit vexed by the riddle of the universe. It was a new evangel for the age of reason, that set up its particular form of adequate order and even of ultimate purpose. The expositions of the faith could proceed only by finding testimonials to its efficacy. To the true believer there were visible evidences of the existence of what he thought should be, which were not to be seen by those who were weak in the faith. Unless one has the proper temperament, the continued elaboration of this single thesis with the weak instruments at his hand becomes dreadfully monotonous. In such a study one knows beforehand that one will encounter only variants of the one theme of influence.

The narrowly rationalistic thesis conceives of environment as process and of nature, man responds or adapts himself. Simple as the thesis sounds, it incurs continually grave difficulties. The supposed specification of specific response to specific stimuli or inhibition. The direct influence of environmental stimuli is purely somatic. What happens to man through the influence of his physical surroundings is beyond the competence of the geographer; at most he may keep informed as to physiologic research in that field. What man does in an area because of tabu or foreboding or because of his own will involves use of environment rather than the active agency of the environment. It would, therefore, appear that environmentalism has been shooting neither at cause nor at effect, but rather that it is bagging its own decoys. Conclusion

In the colorful reality of life there is a continuous resistance of fact to confinement within any 'simplicistic' theory. We are concerned with "directed activity, not premature realization" and this is the morphologic approach. Our naivey selected section of reality, the landscape, is our field of work. We are concerned with the importance of the site to man, and also with his transformation of the landscape on his side, as expressed in the various landscapes of the world. Here we are inexhaustible body of fact and a variety of relation which provide a course of inquiry that does not need to restrict itself to the straits of rationalism."

91 Kremer, A. L., Anthropology (1943), pp. 180-190, 302-303, scrutinizes the ex parte nature of environmental tenets in their relation to culture.

92 Wissler, Clerk, Ecology, vol. 5, p. 333 (1944): "While the early history of the concept is probably lost to us forever, there are not wanting indications that the ecological idea was conceived in the same atmosphere as the theory of design, or of purposeful adaptation. However, that may be, the effort on the part of later professors of ecology has been to exorcise all such philosophies except the fundamental assumption that plants and the rest of nature are intimately interdependent upon each other." Thus "the anthropologist is not only trying to show what all the forms and forces of nature have done to man, but even with more emphasis what man has done to nature." (p. 312). This definition of anthropology includes a very large part of the social field, and is also a good definition for geography. At present anthropology is the study of culture per se. If our studies of man and of his work have large success in synthesis, a gradual coalescence of social anthropology and of geography may represent the first of a series of fusions into a larger science of man."