the study of forces as to leave only secondary and partial emphasis on the study of the resulting forms. Not a few physiographers have voiced the criticism that such works are really treatises on dynamic geology rather than on physiography. Such criticism reflects the prevailing tendency to consider studies of processes from the purely dynamic point of view as lying outside the field of physiography, and to call such studies by the time-honored name "dynamic geology."

PHYSIOGRAPHY OF THE LANDS AND GEOMORPHOLOGY

For most workers in the subject, "physiography of the lands" and "geomorphology" are synonymous terms. Neither term implies the study of processes of and for themselves, any more than either implies the study of geologic structures of and for themselves. Such studies are left to workers in the classic fields of dynamic geology and structural geology. The physiographer (of the lands), or geomorphologist, does of course concern himself much with processes and structures, just as does the economic geologist, the stratigrapher and workers in other branches of geologic science. But he deals with both merely as factors in the evolution of land forms, which latter is the real object of his study. He touches lightly or leaves untouched many aspects of dynamic geology which are vitally important from the dynamic point of view, but which throw relatively little light on the evolution of the earth's surface features. So also in structural geology he is forced to pass by many fascinating questions which concern him less directly than other aspects of that field.

In short, the geomorphologist recognizes the existence and the importance of two vast fields, dynamic geology and structural geology, each well worth cultivating for itself alone, but each quite distinct in objectives, methods and in much of its subject matter, from his own field—physiography of the lands. From those neighboring fields he draws what he needs for the understanding of his special problems, just as he expects the dynamic geologist and the structural geologist to take from geomorphology everything which will help to elucidate their problems. But he does not forget that there is a real independence as well as an interdependence of the three fields of investigation.

THE NATURE OF GEOMORPHOLOGY

The content of geomorphology is reasonably well established, both by definition on the part of experts in the subject and by common usage of workers in the field. It comprises the study of the origin and evolution of the surface features of the earth in terms of "structure, process and stage." Of the three terms of this trinity, elaborated by Davis in many of his writings, *structure* is the only static or passive element. The *process* is the active vitalizing factor without which there could be no cycle of land-form evolution; and the *stage* of the cycle is a transitory phase of the ever-changing record of the extent to which the active process has operated.

In a day when the only scientific geography was physical geography or physiography, it was perhaps natural that the cycle of land-form evolution should be called "the geographic cycle." To-day "geographic" has a very different connotation. Modern geographers may not agree as to the scope of their subject; but a large proportion of them define its essence, in one form or another, in terms of the relation of organic life to physical environment. The geographer thus puts emphasis not only upon life and its relations, but also upon physical environment as it is to-day. For him the physical environment may perhaps be said to represent the static or passive phase of his study. The cycle of land-form development is not "geographic" in this modern sense of the term. It is "geomorphic," however, and can perhaps best be called the *geomorphic cycle.*

Since the geomorphologist is dealing, in terms of structure, process and stage, with ever-changing cycles of land-form evolution, his point of view can never be static or passive. He studies the effects of geologic processes operating upon geologic structures throughout significant periods of geologic time. Only thus can he understand and interpret the evolution of the earth's surface features. Whether or not the dynamic geologist can afford to ignore surface form in his dynamic studies, it would seem that the geomorphologist must always think in terms of progressive changes effected by dynamic action.

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AN APPEAL TO ANTHROPOLOGISTS

AVAILABLE information on the color of the iris at birth is meager and inaccurate. The popular generalization that "all white infants have blue eyes" is still widely quoted, although any obstetrician, midwife or nurse who has noticed the irises of many new-born infants can recall that some are totally brown, some are blue-green and some are mixed brown and blue or blue-green. It is well known also that during infancy significant changes in iris coloration occur, especially in those which are initially some type of blue. No positive information seems to be available as to whether the initially brown irises desaturate, and whether in the extremes of such cases they become finally some type of blue with or without partial brown patterns (in streaks, flecks or rings surround-

ing the pupil). Just how rapidly the major changes in coloration occur is unknown, although general opinion is to the effect that the "final" color is attained some time between the first month and the first year of post-natal life. However, general observation again suggests that throughout life marked changes occur. It is obvious that each of these factors must be considered in any adequate evaluation of the ethnological significance of iris color, as well as in any detailed study on the inheritance of this characteristic.

Through the cooperation of the department of obstetrics of the Johns Hopkins University, conditions favorable to the type of study just outlined have been placed at our disposal. Observations made so far present many new points of interest, which diverge from the commonly accepted opinions noted above. Moreover, problems have appeared which will call for a major series of investigations involving the cooperation of embryologists, oculists, chemists, physicists and others. By the end of the summer we hope to have a preliminary report ready, setting forth the import and complexity of the problem with the methods developed, and results of preliminary observations. In the meantime, we wish to invite the cooperation of anthropologists who are stationed in, or who plan expeditions to various parts of the world, in obtaining data on the iris coloration at birth, and on changes during the first year, for various stocks; especially those not available in the Eastern United States. Of special importance will be data on stocks which have been hybridized very little during recent times.

One of our ultimate goals will be the development of a scale which is both reproducible and graduated in more adequate steps of hue, saturation and pattern than any existing scale; and we are using methods by which our color standards can be specified in physical units; nevertheless, for present purposes, reports made in verbal terms will yield useful information. Descriptive terms such as those listed below, together with approximate descriptions of patterns due to intermixtures of color, are sufficiently differentiating to indicate variations of major importance. Such data are admitted to be unreliable, but where so little is known, rough data are indispensable to the planning of accurate measurements.

The following color terms include many of the differentiations of eyes at birth as so far observed, and are suggested as constituting the basis of a scheme which may give some uniformity of report for different observers. Of course, qualifying words may be needed in certain cases, and when the eye color falls outside of this list appropriate additional terms will need to be used.

Light yellowish brown	Light greenish blue
Dark yellowish brown	Dark greenish blue
Light reddish brown	
Dark reddish brown	Dark purple
Very dark brown	Lavender
Light blue	Pale red
Medium blue	Ruby red
Dark blue	Orange red
Very dark blue	
Gray blue	

Special points to be noted are indicated by the following questions:

(1) Is the iris of approximately a single color evenly diffused?

(2) If the iris is a mosaic of two or more colors, what is the relative distribution and general character of the pattern; *e.g.*, does one color form a ring at the edge of the iris, or an irregular patch, or does it occur in flecks or streaks? What relative proportions of the iris are occupied by the various colors? An approximate description of the pattern would be desirable.

(3) At birth is the iris cleared, or is there a hazy coat of slaty blue or other color uniformly distributed; or is part of the iris thus covered, part of it being cleared and having another color? How early does the hazy coat disappear and the iris become cleared, and what is its color at this time?

(4) During the first few months do eyes which initially are totally blue change to brown, and do in some cases eyes which initially are brown change to totally blue or a smaller area of brown?

(5) What is the color of the sclerotic coat of the eye; is it "white" or is it bluish, brownish, etc.?

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A FURTHER NOTE ON THE ANALYSIS OF ELECTROMYOGRAMS

IN a recent issue of SCIENCE, Davis, Forbes and Garceau[1] commented upon a method described by Travis and Hunter[2] for studying voltage-frequency relationships in action currents. Travis and Hunter may be criticized for not making clear certain points relative to the applicability of their method, but the method itself does not appear to deserve the criticism offered against it by Davis, Forbes and Garceau.

In the main Travis and Hunter's method is one for the treatment rather than for the elucidation of the origin and ultimate nature of action current potentials. It was designed to give an effective value

[1] H. Davis, A. Forbes and L. Garceau, SCIENCE, April 22, 1932.

[2] L. E. Travis and T. A. Hunter, SCIENCE, February 19, 1932.